JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

Vol. VI JUNE, 1917 No. 6

PUBLISHED MONTHLY BY

AMERICAN PHARMACEUTICAL ASSOCIATION

Office of Publication: Easton, Pa.
Editorial Office: 253 Bourse Building, Philadelphia, Pa.

Annual Subscription, $4.00; Single Numbers, 35 Cents

Entered as Second-class Matter January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879.

ANNUAL CONVENTION OF AMERICAN PHARMACEUTICAL ASSOCIATION AT INDIANAPOLIS, AUGUST 27 TO SEPTEMBER 1, 1917. HEADQUARTERS, CLAYPOOL HOTEL.

American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy will convene in Indianapolis, August 27 and 28.

APPLICATION FOR MEMBERSHIP
IN THE
American Pharmaceutical Association

Approving the objects of the American Pharmaceutical Association, I hereby subscribe to them, and apply for membership in the Association, including subscription to the JOURNAL.

Name in Full .....

(Write or print name in full—Initials are not sufficient)

Number and Street .....

Date ..... **Town** ..... **State** .....

Paid, $ ..... **No.** .....

NOTE—The Payment of $5.00 at one time covers the dues for one year and one year's subscription to the *Journal*. If paid separately, the annual dues and subscription are $4.00 each.
This application, with the first year's payment of $5.00 may be sent to the Chairman of the Membership Committee, the General Secretary, the Secretary of the Council, or any officer of the A. Ph. A.

J. W. ENGLAND, Secretary of the Council,
415 North 33rd Street, Philadelphia, Pa.

MERCK **"Merck's for prescriptions"** MERCK

MADE ON HONOR R·C·C. SOLD ON MERIT

THE CALL

Come on, old scout—
Cut loose and come;
We'll take the route
We used to go,
Where woodwinds hum
And cool brooks flow,

And speckled trout
Flash to and fro
The lake is there,
The same old blue
That once we cut
In our canoe.

Don't sit and stare;
Don't "If" and "But"—
The open air
Is calling you.
—Berton Braley

THE DRUGGIST who *pretends* he wants the best, but who finally sees nothing but PRICE buys unwisely. He who really wants the best, and *investigates*, buys and *PUSHES* ROBERTSON'S FRUIT TABLETS. 25 dainty, delicious flavors. They are like the happiest memories of childhood days—pure and sweet as the old orchard was at this time of year. And sold in the same modest jars you found in the old town's best drug store. They're as honest as they look—still made the same old way—highest quality cane sugar, pure fruit juices, etc.

ROBERTSON CANDY CO. ROBERTSON-BRADSHAW CO.
286 Greenwich Street, New York

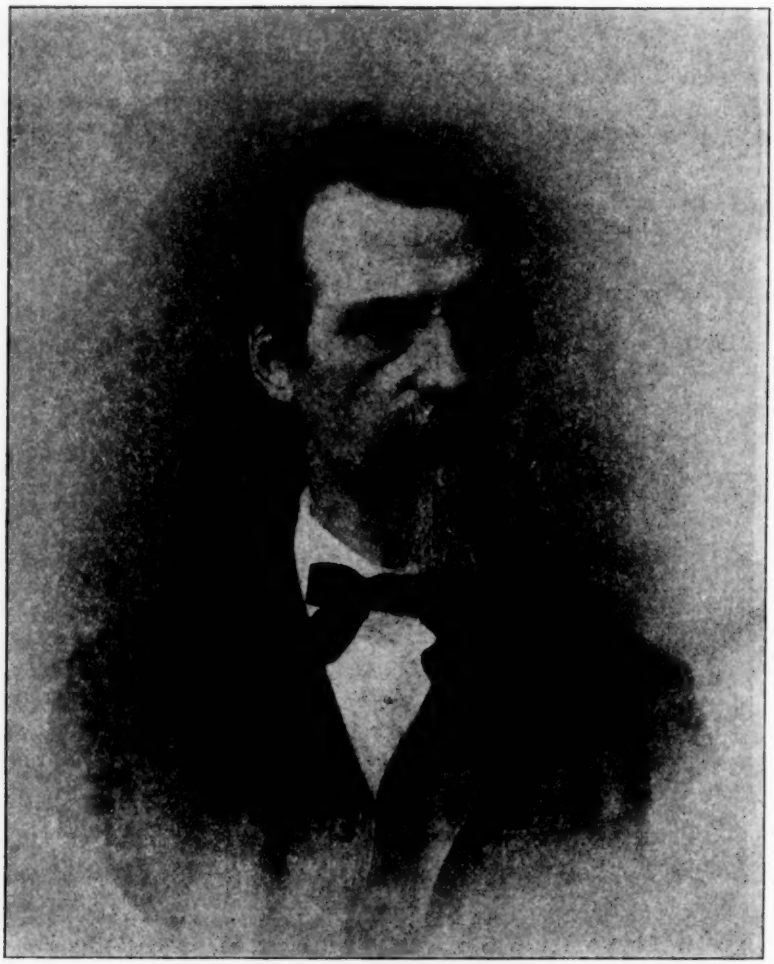
SPECIAL ATTENTION If you want to sell your drug store—or buy one in any state—or want any kind of a position—or need any kind of an employee—or need a Doctor, Dentist, or Veterinarian—write
F. V. KNIEST, R.P., Bee Building, Omaha, Neb. Est 1904

Table of Contents of this issue will be found on the last page (xvi)

PROF. JOHN M. MAISCH

Permanent Secretary of the American Pharmaceutical Association from 1865 until the conclusion of his labors here, September 10, 1893.

Making a deduction from Carlyle's writings, heroes are the brilliant centers of light, and in their loyal recognition lies the security for all external progress. Thereby those, who have gone before, may be said to be always among us with their council and advice.—E. G. E.



JOHN MICHAEL MAISCH, PH.M.

Professor Maisch organized the U. S. A. Laboratory at Philadelphia, March 1863 and was in charge until its discontinuance September 1865. Although the Laboratory was started after the war between the States had been in progress for several years, the records show that thereby the Government was saved the sum of $766,019.22, quite a saving for any period, but relatively larger for a half century ago, than in the present day of larger figures.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. VI JUNE, 1917 NO. 6

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE URGENT NEED FOR A PHARMACEUTICAL CORPS IN THE U. S. ARMY.

MEMBERS of the American Pharmaceutical Association are, of course, aware that an effort is being made to convince the Government that a pharmaceutical corps should be provided for in the U. S. Army. Articles relating to this promotion are printed in the May issue, and in this number the subject is referred to in the report of the Philadelphia Branch A. Ph. A., and also under Editorial Notes, and a report of the Committee on National Defense of the American Pharmaceutical Association is made in the department of Societies and Colleges of this issue.

The Philadelphia Drug Exchange has sent an official communication to the War Department in which reasons are set forth, why a pharmaceutical corps should be provided for in the Army, and these are so well stated and defined that they will doubtless serve as a source of valuable information to our readers; they follow:

1. The present system of enlisting pharmacists in the Army, *not* as pharmacists, but as privates, is hopelessly antiquated. France, Germany, Japan and other foreign countries have a pharmaceutical corps in their armies in charge of a pharmaceutical expert.

2. The present system is unjust to pharmacy and pharmacists. Pharmacy is a profession and the pharmacist of to-day has had years of collegiate training and practical experience in scientific work. To enlist professional men as privates is not only unjust to the men, but is unjust to the Army, because it denies to the Army the possibilities of service which such men could render.

3. The present system is faulty. The status of pharmacists in the Army is very unsatisfactory. Officially, they are not pharmacists, but non-commissioned officers with responsible duties and no possibility of advancement in the Service as pharmacists. They can excel as privates and be promoted as privates, but they cannot excel as pharmacists and be promoted as pharmacists; and this injures the service.

4. The present service is detrimental to the efficiency of the Army itself, because it fails to recognize the importance of proper and sufficient pharmaceutical service and denies to the sick and wounded the best pharmaceutical service that the Nation can give.

5. The present system is unfair to the Medical Corps, because it denies that body the assistance and support that a properly trained pharmaceutical corps could give. The pharmaceutical

service could be made most valuable to the medical profession, not only in the hospitals, but also in the field.

Pharmacists have been trained, not only in the science and art of pharmacy, but also have had elementary instruction in some of the medical sciences, and with but little extra training could be made useful "medical assistants" in the field in the matter of surgical anesthesia, surgical dressing, etc., thus supplementing and helping the medical service.

We are informed by the Dean of a medical school in Philadelphia that 14,000 physicians will be required for an army of a million, that there are less than 7,000 physicians with ages of less than 31, and that, of these, probably one-half are physically unfit for service.

If this is correct, then only one-fourth of the necessary medical material is available. In view of such a possibility, it seems to us that pharmacists could be made, with extra training, most valuable "medical assistants" in the field, while in the hospitals they could be given charge of the medical supplies of the hospitals, and render pharmaceutical and chemical service in the compounding and dispensing of drugs and in the chemical and bacteriological examinations of excrements, foods, water, milk, etc.

It is becoming very evident that there will be difficulty in enlisting a sufficient number of medical men for the Medical Corps, and it is equally true that much of the work which is now performed by medical men could be done as well or perhaps better, on account of special training and education, by qualified pharmacists. This clearly indicates not only a way for making up the deficiency but also emphasizes one of the reasons assigned for a pharmaceutical corps. The enlarged army of 293,000 men will require 2,051 medical officers; a few weeks ago there were less than 600 enlisted. With a further increase, the relative number of medical officers must be maintained. So the point made is stressed that modern organization demands a delegation of some of the duties now assigned to the Medical Corps, to a pharmaceutical corps.

The *Journal of the American Medical Association*, under the caption of "The Medical Officers of the Army" explains the duties of the Medical Corps in service. We can not quote at length, but such statements occur as, "The camp infirmary is nothing but a small dispensary." "If the fighting has been severe and the casualties heavy, the sanitary personel may be insufficient for this work, and in that case assistance is requested from the line, etc."

The quality of the food supply must be looked after, microscopical examinations must be made of secretions and excretions; water and other analyses are necessary for tracing the origin of infection, minor dressing, and many other essentials come to mind which the modern pharmacy school graduate is well qualified to perform. Specialization in army organization is quite as important as in other activities and an endeavor to circumvent the giving of professional recognition to pharmacists from prejudice or precedent does not tend toward best service or conservation of life.

Here is an opportunity for liberal coöperation on the part of the medical profession, by which they will not only render a service to those who offer themselves in the nation's cause, but to a profession that has worked with their own for centuries in a service for humanity.

The gunner seldom is given recognition for the part he plays in a battle, neither can the work of the pharmacist, however important, gain the plaudits given those who utilize his work or armamentarium, but he should receive encouragement.

The statement has been made that the pharmacist should not ask for rank, that service should be given through loyalty and patriotism. And still this is the appeal to medical men from an official source, "The life and professional work of the regular army medical officer has many attractions." "The position is one of honor, one that commands respect, and one that presents many opportunities for the ambitious." Should pharmacists not have a pride for their profession, in which such men as Scheele, Labarraque, Caventou, Pelletier, Davy, Rice, Procter, Maisch and others of equal distinction dared to labor in and for? Will we admit that the modern American pharmacist is neither competent nor deserving? The American manufacturers of biologics are all pharmacists; the same may be said of medicinal, chemical and pharmaceutical manufacturers. But this is simply an interpolation; better recognition of pharmacists is a selective proposition and will increase the number of those who will seek their field, and better pharmaceutical service will be helpful to medicine and of greater value to the public and to the Army.

The additional work or information that may be required of those who would be part of a pharmaceutical corps is certainly more readily and understandingly acquired by those who have had training and education than by those who have had neither.

The message is not only intended to stimulate a supreme effort for recognition, so that pharmacists will unite in pushing their claims, but also to urge a persuasion of those who may be able to assist in the culmination and encourage them also to coöperative action. Whatever is worth having is worth fighting for, and if gained after strenuous efforts will be correspondingly more appreciated. The contest is deserving of your effort; give to it your prompt, energetic and enthusiastic support.

If, as we are fully convinced, a pharmaceutical corps in the Army is in the interest of better service and conservation of the lives and well-being of our military forces, then surely, with this object paramount, the five hundred thousand engaged in pharmacy and the related industries, with investments that present a favorable comparison with other activities, a source of revenue for the Government, relatively exceeding that obtained from those shown greater favor, should be accorded due consideration, otherwise a good and sufficient reason for negation. But there must be determination, and the wisdom of the project must be shown.

E. G. E.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

ON THE DETECTION OF MOLD IN DRUGS, FOODS, AND SPICES.*

With Special Reference to a Specific Stain.

BY ARNO VIEHOEVER.

It is noteworthy that even in recent books dealing with the microscopy of drugs, foods or spices, the subject of molds and their detection has scarcely, if at all, been discussed.

As commonly understood, the term "mold" refers to certain types of lower vegetable organisms, botanically called "fungi." The best known of these types are the black molds or mucor and the green and yellow molds or Penicillium and Aspergillus species.[1]

While in the manufacturing process of some food products such as Roquefort and Camembert cheeses the presence of certain molds is desired, in most instances the occurrence of molds in foods and drugs is not wanted. Molds usually not only spoil the appearance of the foods and act repellant to the taste, but also change their appearance and their physical and chemical properties.

As long as the products are in their natural state, or nearly so, it is usually comparatively easy to detect either the mold or the change that has taken place through its growth. This is, however, different, when the condition of the products has been changed through grinding or some other manufacturing process, such as cutting, mixing, boiling or roasting. In this condition it will usually be impossible to detect the mold with the naked eye, and depending on the manufacturing process used, it will often be impossible to detect with certainty any change in color or flavor due to the mold growth in the original product.

The difficulty of detecting the mold in the manufactured product has often encouraged and still encourages the utilization of moldy fruits, vegetables, drugs and spices in the manufacture of either prepared food products or powdered drugs and medicinal preparations.

METHODS FOR THE DETECTION OF MOLD.

There are three ways open for the analyst to detect the hidden mold:

1. The Cultural Method.—Mold may be grown by exposing parts of the material suspected of infection by mold under favorable conditions of temperature and humidity. If accidental infection is prevented by very careful sterile manipulation in which the adhering mold fragments are removed by flaming the outside of the material one may obtain excellent results with this method, provided the mold hyphae or spores have not been killed, by the manufacturing process or storage. In this method a number of parallel experiments should be undertaken as well as such in which the conditions of cultivating are varied in order to make sure that a number of other molds possibly present will not be suppressed in their growth. It should be remembered that it takes several days to obtain a result

* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

and that this method only works satisfactorily in the hands of an analyst trained along this line. No accurate information as to the extent of the mold infection can properly be expected with this method.

2. Microscopic Examination of the Material not Especially Treated or Stained.—Where the analyst wants a quick result, or where he wants to support his findings obtained with the first method, a direct examination under the microscope often is of value. If the material is not changed too much through the manufacturing process or through storage and decomposition, it may be possible in many cases to detect the presence of mold. It may even be possible to determine approximately the extent of the mold contamination by mounting and examining a certain definite dilution of the suspended material in a Zeiss counting chamber, such as is used for counting blood corpuscles. This method works best only in the hands of a well-trained microscopist familiar with the microscopy of plant products as well as molds. It is used by the Bureau of Chemistry in examining tomato pulp and tomato ketchup.[2]

3. Microscopic Examination of the Material Especially Treated and Specifically Stained.—While staining of the microscopic preparation with some of the stains commonly used for vegetable tissues, *e. g.*, methylene blue, methyl violet, etc., will prove of some advantage in the differentiation of plant tissue and mold mycelium, these stains are not specific stains for the cell wall of fungi. van Wisselingh[3] (1898) already pointed out that coloring substances like methylene blue, ruthenium red, brillant blue, and congo red, have no distinct value if one looks for stains to detect chemical substances of definite character. His experiments with another microchemical stain, iodine, followed by sulphuric acid, gave him the desired result, but this stain worked only on material previously treated with concentrated KOH solution. His results will be mentioned later, after a discussion of the work done previously by others on the isolation and identification of the specific substance present in the cell wall of fungi.

OCCURRENCE OF CHITIN IN THE CELL WALL OF FUNGI.

As long ago as 1811 Braconnot[4] had found the presence of a substance different from cellulose in the cell walls of fungi. He isolated from a number of fungi, including mushrooms and mucor septicus, a product similar to cellulose but containing nitrogen, and called it fungin. Fremy[5] (1859) isolated a substance which was, like cellulose, not soluble in copperoxide-ammonia and called it metacellulose. De Bary[6] (1866) called it Pilzzellulose, since the substance isolated from molds and mushrooms was insoluble in copperoxide-ammonia and, unlike cellulose, did not give a blue color with iodine and sulphuric acid. Tschirch[7] (1889) p. 191, recommended the name "mycin" in analogy with lignin and suberin. Gilson[8] (1894) isolated from the common mushroom (*Agaricus campestris*), as well as from ergot, a substance which he called mycosin and which treated with hydrochloric acid gave glucosamin. Winterstein[9] (1894) also isolated glucosamin at the same time from other mushrooms (*Boletus edulis*) or fungi imperfecti (*Botrytis cinerea*). In a later publication Gilson[10] (1895) pointed out that the mycosin isolated by him from fungi was identical with the chitosan isolated by Hoppe-Seyler[11] (1894) from animal tissue. Winterstein[12] (1895) had already, a few months previous to this announcement of Gilson, isolated chitosan from a number of mush-

rooms, mostly edible, and the opinion of Gilson was thus confirmed. Iwanoff[13] (1901) also isolated from *Boletus edulis*, *Aspergillus niger* and ergot the substance which gave all the reactions of the substance found in certain animal tissue, especially of insects, and called chitin. The composition of chitin has often been studied and quite recently by Brach[14] (1912) who reports that complex groups of monoacetylglucosamines form the smallest building stones of chitin ($C_{32}H_{54}N_4O_{21}$). This on treatment with KOH is split into chitosan and part of the acetic acid groups present. The constitution of chitin however is not entirely cleared up.

van Wisselingh[3] (1898) was the first to support the chemical findings of others by microchemical tests. He used the method of Hoppe-Seyler and Gilson, heating the material with KOH to 180° C. and after removal of the KOH colored it with iodin followed by H_2SO_4 in a dilute form, thus staining the chitin converted to chitosan or mycosin. Gilson had previously found the reagent to work better in great dilution.

van Wisselingh tested a great number of fungi at different stages of their development for the presence of chitin and found it generally with only a very few exceptions (the Peronosporaceae and Saprolegniaceae) throughout the group of fungi. He found it in the common molds and confirmed thus the findings of the chemists. Ilkewitsch[15] (1908) on the basis of inadequate experiments came to the conclusion that the fungi contained neither chitin nor cellulose, but a substance closely related, which he called mycetin. Wester[16] (1909) confirmed the results of van Wisselingh, pointing out the errors of Ilkewitsch. Wester extended the search for chitin and found it in a number of new species of fungi.

Viehoever[17] (1912) repeated the experiments and confirmed the presence of chitin in the cell walls of a number of fungi, mentioning especially *Sporodinia grandis* and *Aspergillus glaucus*. Cihlar (see Vouk,[18] 1915) found chitin in the cell walls of a number of fungi belonging to the three main groups, Phycomycetes, Ascomycetes and Basidiomycetes, including common molds and mushrooms.

APPLICATION OF THE CHITIN TEST.

Recently in examining drug products suspected of containing mold, *e. g.*, ground nutmegs, a patent medicine containing a great number of drugs in suspension, and flour containing ergot, it occurred to the writer that the chitin reaction might be applicable to detect the presence of mold or ergot. The experiments were wholly successful and were extended to other drugs like areca nuts and gentian root, spices like ginger and capsicum, and to food products such as moldy lemons, cherries, strawberries, peaches, tomatoes, water-damaged coffee beans, etc.

Further experiments are being carried on in the Bureau of Chemistry to determine not only whether or not all the molds occurring in food or drug products can be detected with this stain, but also if all stages of development of the different molds can be stained.

So far no tissues of higher organized plants have been found to contain chitin. It is believed that the general application of this chitin reaction in the analysis of food and drug products will enable the micro-analyst to detect much more easily the presence, location and nature of a mold. The analyst probably will obtain

more accurate information concerning the amount of mold present. (The writer has already made a number of experiments to determine ergot quantitatively in flour and believes that the results are promising.) He will not have to depend on living mold and will not have to fear a complete destruction of the mold cells through the manufacturing process, since dead mold hyphae and mold cell fragments will naturally show the stain as well.

It is furthermore believed that the stain can be used with advantage in the detection of infection of plants by fungi. The author in fact, used it to prove that caraway fruits which were suspected of being attacked by a fungus, were indeed infected, some very slightly, others quite markedly. The appearance and staining properties of the fungus were very similar to those of ergot, occurring especially on rye. The test was furthermore successfully used to show the infection of wheat grains with smut spores (*Tilletia foetens* (B. C.) Trel.).

The detection of fungi causing skin and other diseases of animal tissue (see Kolle and Wassermann,[19] 1913) may be facilitated if the test is applied to the infected tissue. The reaction may be of help in toxicological cases in deciding if moldy food or mushrooms might have been consumed and caused the intoxication.

OCCURRENCE OF CHITIN IN LICHENS, MYXOMYCETES AND BACTERIA.

Chitin has been found in a number of forms of lichens, which was to be expected since fungi are a part of lichens. This fact may be of use in determining the origin and source of certain barks. *Rhamnus* barks are, for example, characterized by the presence of lichens on the outer surface. Since lichens occur only on the stem bark, that is, on places exposed to light, the reaction might be of value in deciding whether or not a bark is obtained from the root or stem, for example, in the case of pomegranate bark.

van Wisselingh found chitin in the Myxomycete called "Club Root Cabbage" (*Plasmodiophora brassicae*) and succeeded also in staining this slime mold by treating the infected tissue of cabbage.

Chitin has also been found in bacteria, which fact supports the opinion of systematic botanists like Arthur Meyer[20] (1912) that bacteria are closely related to fungi. Ivanoff[13] (1901) obtained chitin from *Bacillus anthracis* and two other bacteria species, and although van Wisselingh (1898[3]–1916[21]), Garbowski[22] (1907) and Wester[16] (1909) could not detect it microchemically, Viehoever[17] (1912) succeeded in locating the chitin microchemically in a number of species of bacteria. The stain, in this case, is sometimes only visible with difficulty. The bacterial membranes moreover are usually not so resistant to KOH as the membrane of mold cells and the treatment has to be modified somewhat.

NATURE OF MOLDS FOUND IN FOODS AND DRUGS.

Those who are interested in knowing what molds have been found in our daily foods may find much information collected in the books of Kossowicz[23] (1911), Stevens[24] (1913) and Conn[25] (1912). A number of recent articles on the subject of fungi affecting food products may be found in the Journal of Agricultural Research, including a paper by Thom and Shaw[26] (1915) dealing with the molds occurring in butter, etc., and one dealing with those occurring in strawberries (Stevens[27] 1916). As far as the writer is aware very little attention has been paid thus far to molds occurring in crude drugs or drug preparations. However,

reference may be made here to the work on the molds causing different kinds of rot of the Ginseng root. (Rosenbaum and Zinnsmeister,[28] 1915, Rosenbaum[29] 1915.) The molds found thus far in our work on drugs and spices and isolated by the Microbiological Laboratory of the Bureau of Chemistry consisted of different species of *Mucor*, *Penicillium* and *Aspergillus*. Of special interest may be that caraway seed and cumin seed were found to be infected by a fungus transforming the fruits to ergot-like sclerotia.

DESCRIPTION OF METHOD.

The test as mentioned above relies on the transformation of chitin to chitosan which is stained in a way specific to chitosan.

TRANSFORMATION OF CHITIN TO CHITOSAN.

The fact that the chitin reaction is so little known and used is undoubtedly due to the inconvenient procedure as originally recommended by van Wisselingh or as modified by Wester. van Wisselingh in a recent manuscript[30] (1915) still recommends the heating in closed glass tubes to 160° C. in a concentrated or 50 percent KOH in oil bath or in a hot air oven. Wester[16] (1909) recommended an especially constructed oil bath in which the material, imbedded in 60 percent KOH and enclosed in tubes of definite size were heated to 160° C. Viehoever[17] (1912) heated the material in 50 percent KOH in small glass tubes in an autoclave under 6 atmospheres pressure (about 164° C.) for a short while using at first closed glass tubes and later open glass tubes and pressures of 2–3 atmospheres (115–120° C.). Experiments were also carried on in which the material was allowed to stand in 50 percent KOH without heating (Viehoever[31] 1913) with the result that Wester's general conclusions were confirmed, indicating that the action of KOH takes place in the cold as well as at high temperatures, but that it takes months at room temperature to complete the transformation of chitin to chitosan. V. Vouk[18] (1915) recommends the heating of the fungi material in boiling saturated KOH for 20 to 30 minutes.

The writer believes that a heating of the material to almost boiling with 40 to 50 percent KOH or NaOH for 40 to 60 minutes will give satisfactory results in most cases and may be conveniently done on an electric plate in a flask, the opening of which is covered with a funnel.

After centrifuging, if necessary, the excess of KOH is decanted. The material, if it is practicable is pressed out with a glass rod to remove as much KOH as possible. The material is then washed with alcohol or glycerin (about 50 percent) depending on the nature of the product. (Glycerin proved to be very useful in the work with bacteria.)

STAINING OF CHITOSAN.

After removing the last traces of KOH by using more dilute alcohol or glycerin (about 25 percent), and possibly neutralizing at the end with 1 percent sulfuric acid the material is treated with a solution of iodine-potassium iodide (2 iodine, 1 potassium iodide, 200 Cc. water.) The excess of iodine solution is then replaced with dilute sulfuric acid, preferably 1 percent. In the presence of chitin or chitosan a distinct red to violet color is detected.

SPECIAL REMARKS.

If the treatment with KOH is not unduly extended the plant tissue is not very much destroyed and the stain brings out the mold mycelium very distinctly.

In case the color should not be distinct or even be covered by another color in the hyphae, the untreated material may, according to van Wisselingh and Wester, first be heated with glycerin to 300° and then treated with KOH.

In case the material should contain large amounts of starch, which may give a color somewhat similar to that of chitosan, the starch can be hydrolyzed with freshly prepared diastase from malt or with taka-diastase or can be differentiated from the mold with the polarization microscope through its ability to refract the light.

Since alkali carbonates do not seem to effect the transformation of the cell substance, chitin, as well as hydroxides, it is essential that the solution of alkali hydroxides used should not contain considerable amounts of carbonates. After treatment with KOH it is often advisable to carry on the test with part of the material transferred to a watch glass or object slide. It is important that the free KOH be completely removed since otherwise the iodine solution will be discolored and prevent the stain from developing.

The material must be actually stained with iodine solution before replacing the iodine with dilute sulphuric acid. For purposes of preservation the preparation is best kept in dilute glycerine (1 plus 1). The stain becomes gradually weaker and disappears after about 24 to 48 hours.

Other tests have been recommended for the precipitation and detection of chitosan Löwy[32] (1910), van Wisselingh, [30] (1915). Those already tried appear to be not as sensitive and satisfactory as the iodine-sulphuric acid reaction. Experiments are being continued to find a stain which will not only be as sensitive and specific as the iodine-sulphuric acid stain but will also give a permanent coloration or precipitation.

BIBLIOGRAPHY.

1. Thom, Chapter on "Molds" in Marshall, *Microbiology*, 2d. ed., 1917.

2. Howard, "Tomato Ketchup under the Microscope," Bureau of Chemistry, *Circular* **68**, 1911.

3. van Wisselingh, "Mikrochemische Untersuchungen über die Zellwände der Pilze," *Jahrbücher für Wissenschaftliche Botanik*, **31**, 619–687 (1898).

4. Braconnot, *Annales de chimie et de phys.*, **79**, 256 (1811); **80**, 872; **87**, 257 (1813).

5. Fremy, "Chemie appliquée a la physiologie végétale," *Comptes rendus*, **48**, 275–8 (1859).

6. De Bary, "Morphologie und Physiologie der Pilze und Flechten," 1884.

7. Tschirch, "Angewandte Pflanzenanatomie," 191 (1889).

8. Gilson, "Recherches chimiques zur la membrane cellulaire des champignons," *La Cellule*, **11**, S. 7 (1894).

9. Winterstein, "Über ein stickstoffhaltiges Spaltungsproduct der Pilzzellulose," *Berichte deutsch. chem. Ges.*, **27**, III, 3115–5 (1894).

10. Gilson, "Das Chitin und die Membranen der Pilzzellen," *Berichte, loc. cit.*, **28**, I, 821 (1895).

11. Hoppe-Seyler, "Über Chitin und Zellulose," *Ibid.*, **27**, III, 3329–31 (1894).

12. Winterstein, "Über die Spaltungsproducte der Pilzzellulose," *Berichte deutsch. chem. Ges.*, **28**, I, 167–169 (1894).

13. Iwanoff, "Über die Zusammensetzung der Eiweifsstoffe und Zellmembranen bei Bakterien und Pilzen," *Beitrage zur chemischen Physiologie und Pathologie*, I, 524–37 (1901).

14. Brach, "Untersuchungen über den chemischen Aufbau des Chitins," *Biochemische Zeitschrift*, **38**, 468 (1912).

15. Ilkewitsch, "Mikrochemische Untersuchung der Zellwände von Pilzen," *Bull. Acad. St. Petersbourg*, 571–88 (1908); *Chem. Centralblatt*, **80**, 772.

16. Wester, "Studien über das Chitin," *Inaugural Dissertation*, Bern. (1909).

17. Viehoever, "Über den Nachweis von Chitin bei Bakterien," *Ber. d. deutsch. bot. Gesellsch.*, **30**, 443–452 (1912).

18. Vouk, "Zur Kenntnis der microchemischen Chitin Reaktion," *Ber. deutsch. botan. Gesellsch.*, **33**, 413–415 (1915).

19. Kolle und Wassermann, "Handbuch der pathogenen Mikroörganismen," 2nd ed., Vol. 5, 31ff. (1913).

20. Arthur Meyer, "Die Zelle der Bakterien," Jena, 1912.

21. van Wisselingh, "Over Het Onderzoek Naar Het Voorkomen Van Chitine en Cellulose Bij Bacteriën," *Pharmaceutisch. Weekblad*, **53**, 1069–1078 (1916).

22. Garbowski, "Über Abschwächung und Variabilität bei Bacillus luteus Smith et Baker und Bacillus tumescens Zopf," *Zentrdlbl. f. Bakt.*, **19**, II, 641 (1907).

23. Kossowicz, "Einführung in die Mykologie der Nahrungsmittelgewerbe," Berlin (1911).

24. Stevens, F. L., "The Fungi Which Cause Plant Disease" (1913).

25. Conn, "Bacteria, Yeasts, and Molds in the Home" 2nd ed. (1912).

26. Thom and Shaw, "Moldiness in Butter," *Journal of Agricultural Research*, **3**, 301–310 (1915).

27. Stevens, H. E., "Pathological Histology of Strawberries Affected by Species of Botrytis and Rhizopus," *Journal of Agricultural Research*, **6**, 361–366 (1916).

28. Rosenbaum and Zinnsmeister, "Alternaria panax, the Cause of a Root-Rot of Ginseng," *Journal of Agricultural Research*, **5**, 181–182 (1915).

29. Rosenbaum, "Pathogenicity and Identity of Sclerotinia libertiana and Sclerotinia smilacina on Ginseng," *Journal of Agricultural Research*, **5**, 291–298 (1915).

30. van Wisselingh, "Über die Anwendung der in der Organischen Chemie gebräuchlichen Reaktionen bei der phytomikrochemischen Untersuchung," *Folia Microbiologica.*, III, May, **1–34**, 1915.

31. Viehoever, "Botanische Untersuchung harnstoffspaltender Bakterien," *Centralblatt für Bakteriologie, Parasiten, und Infektionskrankheiten*, **39**, II 209–359 (238) (1913).

32. Löwy, "Über krystallisches Chitosansulfat," *Biochem. Zeitschr.*, **23**, 47 (1910).

PHARMACOGNOSY LABORATORY,
BUREAU OF CHEMISTRY, WASHINGTON, D. C.

CHEMICAL MONOGRAPHS AND NEW CHEMICALS IN U. S. P. IX.*

BY OTTO RAUBENHEIMER.

One of the principal features of the new Pharmacopoeia is the addition of 34 chemicals. More would have been added, especially of the newer chemicals, were it not for the general principle followed in the Revision that "No substance shall be introduced if controlled by patent rights." Nevertheless, the Sub-Committee on Scope recommended the addition of several patented or synthetic chemicals. When permission was asked from the manufacturers to include these chemicals in U. S. P., this was in most cases refused. A sure proof that manufacturers are not overanxious to officialize their products, or do not care to enlighten pharmacist or physician. I became fully convinced of this after a conversation with an agent of a manufacturer, who openly told me that he wanted physicians to remember the short, euphonious, therapeutic name of his product, but not the long chemical term! Truly not the right kind of spirit in our enlightened, but commercial age!

* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

The admissions, as well as the deletions, have been governed by 2 basic principles formulated by the Sub-Committee on Scope under the chairmanship of Dr. S. Solis Cohen, namely "therapeutic usefulness and pharmaceutic necessity."

Before taking up the added chemicals, I will endeavor to analyze the most excellent arrangement of the chemical monographs in U. S. P. IX, for which the Sub-Committee on Inorganic and Organic Chemicals and the Editor, Prof. Remington, are responsible.

ARRANGEMENT OF CHEMICAL MONOGRAPHS.

The heading comprises 3 lines, namely the Latin title in large capitals, the English title, and in the third line the official abbreviation in solid block type, followed by one or more synonyms. The former are an innovation in pharmacopoeia making and will be found very useful by physicians in writing prescriptions and by pharmacists and chemists in labeling shop bottles. The abbreviations in common use have been adopted, as for instance, sulph. = sulphate, chlor. = chloride. In order to avoid confusion, similar terms as "sulphide" or "chlorate" are *not* abbreviated. Synonyms are printed in small type and in some cases are put in quotation marks, which indicates that this name, although not scientifically correct, is largely used in commerce. It is of great importance to note that "Substances labeled with an official synonym must comply with the standards, tests, and requirements demanded for the official article." It is to be regretted that the old nomenclature of alkaloidal salts, as chloride and bromide, has been adopted as synonyms. The sooner these are forgotten, the better it will be!

The title is followed by the Definition including the Empiric Formula, the Structural Formula and the Molecular Weight. The empiric formulas are very empiric, the total of each element being given. This in the case of organic acids is confusing and a great disadvantage as the replaceable hydrogen is not stated.

One novel feature, which is apt to be overlooked by many, is the change in the positions of N and O, in the formulas of organic chemicals, O being now placed before N. This is a decided improvement and in accordance with modern chemical literature and also the *Deutsche Arzneibuch*. The ending NO_3 in alkaloids, which looks to many, especially students, like a nitrate, is now reversed into O_3N! The position of the elements in organic formulas in U. S. P. IX is C, H, O, N; Cl, Br, I, F; S, P.

Structural Formulas are given, besides the Empiric Formulas, when necessary to indicate structural characteristics. The position of the radicals are indicated by numbers. No Graphic Formulas are given. The Atomic Weights are based upon O = 16 and the 1915 Report of the International Committee has been adopted.

Following the definition is the Purity Rubric, which was first introduced into U. S. P. VIII, and which greatly helped to make this work world famous. The language used is: "Containing, when dried to constant weight (in desiccator or at a specified temperature), not less than percent." In some instances a minimum and maximum purity are given. Whenever a purity rubric is stated in the first paragraph then an assay is given in the last paragraph. The figures given in the Purity Rubric represent requirements that can be reasonably demanded in each instance.

A statement on the preservation of the chemical ends the first paragraph, as for instance: Preserve in well-closed containers, or bottles—in a cool place—protected from heat and light, etc. Delicate chemicals, such as alkaloids, are to be preserved in dark amber-colored vials protected from light.

A Caution Note is added, when necessary, as for instance under Trinitrophenol.

Thus far the monograph is in 12 point type and the remainder is in 8 point type, not because the descriptions, etc. are of less importance, but in order to save space. This is well to remember, because in legal cases arguments have been made, that inasmuch as the type was smaller, the subject treated must be of less importance!

The *Physical Description* of the chemicals in U. S. P. IX is divided into several short paragraphs as follows:

Appearance, color and taste.

Solubility in water, alcohol, glycerin, chloroform, ether and other solvents.

Color of Solution and Reaction to litmus.

Melting or Boiling Point and also Specific Gravity of liquids.

Methods for the determination of melting, boiling and congealing points are given in Part II.

Solubilities are not expressed in "parts" as in U. S. P. VIII, but in the following manner: "*1 Gm.*.....dissolves in.....*mils* of.....at.....° C."

Full particulars are given in Part II, where also the statement is made that "solubilities are not intended as physical constants in the strict sense of the term, but primarily as information required by physicians and pharmacists in connection with the preparation and dispensing of medicines."

The *Chemical Description* in the U. S. P. IX is divided into paragraphs as follows:

Tests of Identity.

In the case of salts these are given for Base and Acid.

Tests of Purity.

These tests are followed by the impurities, in parentheses. The terms "Absence of" or "Limit of" are no longer used. Tests for Arsenic and Heavy Metals are given by reference to General Tests in Part II, in order to avoid repetition and to save space. An important change has been made in the language of the chemical tests. The conditional form of previous Pharmacopoeias, as "If—Gm. be dissolved," has been changed, *as it should be in a legal standard*, to the imperative "Dissolve.....Gm."

Assay.

When a Purity Rubric is given than an Assay is provided. Important changes have been made, changes for the better, as these assays are not intended for "tyros." Two metals, Hg and Zn and their salts have an alternative assay, namely, the Electrolytic Determination, which is fully described in Part II.

Biological Assays are only obligatory for Cannabis and its preparations and Pituitary Solution.

Preparation or Preparations:

The official preparations into which the chemical enters as an *active ingredient*

are again appended as in U. S. P. VII. This should be very useful for the practicing physician and also to students of pharmacy and medicine.

The monographs end with a statement in 12 point type:

Average Dose in both Metric and Apothecaries System.

CLASSIFICATION OF CHEMICAL ADDITIONS.

1 Acid: Phenylcinchoninic Acid.

13 Alkaloids and Alkaloidal Salts, namely:

- 3 Morphine Derivatives: Ethylmorphine Hydrochloride, Diacetylmorphine and Hydrochloride.
- 3 Purine Bases or Salts: Caffeine Sodio-Benzoate, Theobromine Sodio-Salicylate and Theophylline.
- 1 Cocaine Derivative, Beta-Eucaine Hydrochloride.
- 3 Quinine Salts, Dihydrochloride, Tannate and Quinine and Urea Hydrochloride.
- 3 Other Alkaloidal Salts, Cotarnine Hydrochloride, Emetine Hydrochloride and Hydrastine Hydrochloride.

The following 14 salts have been admitted:

- 1 Bismuth Salt, namely the Betanaphtholate.
- 2 Calcium Salts, Glycerophosphate and Lactate.
- 1 Creosote Salt, the Carbonate.
- 1 Mercury Salt, Mercuric Salicylate.
- 1 Potassium Salt, Sulphurated Potassa.
- 7 Sodium Salts, Benzolsulphinide, Cacodylate, Cyanide, Glycerophosphate and its 50 percent Solution, Indigotindisulphonate, Perborate and the exsiccated Sulphite.
- 1 Uranium Salt, the Nitrate.

The following compressed gases have also become official:

2 Gases, Nitrogen Monoxide and Oxygen.

Besides this, the following 5 chemicals have been admitted into U. S. P. IX: Glucose, Paraformaldehyde, Phenolphthalein, and Trinitrophenol.

DEPARTMENT OF AGRICULTURE PROPOSED RULING FOR DANDELION ROOT AND DEFINITION FOR CRAMP BARK

DANDELION ROOT—Examination of samples from a recent importation of dandelion root disclosed the presence of about 40 percent of roots, the interior of which were badly discolored and did not show a porous pale yellow wood, as required by the United States Pharmacopoeia, IX, 1916. The appearance suggested that the material had been improperly dried. This fact was confirmed by microscopic examinations showing swollen brownish yellow masses indicating that the inulin masses had been partially hydrolyzed and caramelized. The department will recommend the exclusion from the United States of any importation of dandelion root which, upon examination, is found to contain more than 10 percent of discolored or improperly dried roots.

USE OF THE TERM "CRAMP BARK."—The Bureau considers that the term "cramp bark" applies only to *Viburnum opulus*, now official in the National Formulary, and consequently should not be used for barks from other sources or their preparations.

PAPERS READ BEFORE THE BRANCHES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

DYESTUFF STATISTICS.*

BY BENEDICT SALKOVER.

The following is a résumé of present-day articles upon that most interesting and all-absorbing topic, "Dyestuffs." The fundamental purpose of this paper is not to present anything original, but to bring home a few facts to you concerning products which play a tremendous rôle in the commercial and scientific American world of to-day. Most of the information has been gleaned from the reports of Dr. T. H. Norton, Commercial Agent of the Department of Commerce.

When coal undergoes destructive distillation in coke ovens or gas retorts, the average products are as follows: Coke 72 percent, gas 22 percent, tar 6 percent. The tar contains some 155 different chemical compounds, none of which are dyes. Ten of these substances are utilized in the manufacture of dyestuffs. They are benzol, toluol, xylol, phenol, cresol, naphthalene, anthracene, methyl anthracene, phenanthrene and carbazol, the latter being a constituent of anthracene. The crude gas given off on distillation contains the first three to some considerable extent. Special purifiers have been designed for their removal and separation. The ten substances enumerated form, from 6 percent to 12 percent of the coal tar, the amounts present varying with the character of the distillation.

These ten crude coal-tar products are separated from one another, and from the great variety of carbon compounds accompanying them in the tar, by fractional distillation, which method, as you know, makes use of the different boiling points of various substances for their ultimate separation. From the ten so-called "crudes" chemical works of a high character prepare nearly 300 so-called "intermediates," compounds that are not dyes, but which are susceptible by direct reaction with proper reagents of being transformed into coloring matters. A number of these "intermediates" are used also in the manufacture of medicinal preparations and photographic chemicals. Leading intermediates are: aniline oil and salts, pure aniline and toluidine, nitrobenzol, naphthol, phthalic acid, salicylic acid, resorcinol, anthraquinone, etc. These intermediates are in reality the raw material for the dyestuff manufacture. Out of them over 900 different dyestuffs are made and currently sold throughout the world. It has been stated in a general way that the average intermediate sells for five times as much as the average crude, and the average finished dye for ten times as much as the average intermediate; so you see the average finished dye is worth fifty times as much as the average crude, a very material enhancement in value. Less than three hundred intermediates have been found sufficient to meet the needs of dyestuff manufacturers, these necessarily combining technical with economic advantages. Likewise, of the more than a million dyestuffs covered by patent specifications, only 900 have won a recognized position, and of these only 400 are in great and varied use.

---

* Read before Cincinnati Branch A. Ph. A., April meeting, 1916.

It has been stated that it is very doubtful whether many additions of value will be made to the current list of dyestuffs in the immediate future. The field certainly has been thoroughly worked, as is easily demonstrated by the number of patents existing at present. During the last ten years only one new class of dyes has been discovered and placed on the market. Dr. Norton, in summarizing the coal-tar dyestuff industry, gives the following features as essential to success: 1. The presence of an ample supply of coal. 2. The extensive use of this coal for gas and coke manufacture. 3. The use of a plant that allows the recovery of the volatile organic compounds formed during destructive distillation. 4. The industrial treatment of the tar produced, so as to separate and furnish in a fairly pure form the ten crude substances. 5. The existence of a well-equipped chemical works, able to transform the ten crudes into nearly 300 more complex intermediate compounds. 6. The existence of a highly organized works for manufacturing from these intermediates some 900 different dyestuffs. 7. An ample and sure supply of a variety of acids and heavy chemicals for affecting the numerous transformations. 8. A relatively large number of university trained chemists.

It may be interesting at this point to consider the manufacture of one intermediate and one dye, just to show the complexity of the reactions involved and the magnitude of the task. Magenta is one of the most famous of red dyes. In its manufacture three intermediates are employed, *viz.*, aniline, toluidine, and nitrobenzene. The toluidine used is of the commercial variety, consisting of 64 percent of the ortho modification and 36 percent of the para. In order to manufacture it, toluol is the first constituent necessary. It is made by distilling one of the coal-tar fractions, boiling between 82° C. and 110° C., containing benzol and toluol. The fact that it has a higher boiling point than benzol is employed in the fractionation. The next step in the process is the manufacture of *o*- and *p*-nitrotoluol, which is done by the nitration of toluol; *o*- and *p*-toluidine are then made by reduction of nitro-toluol with tin and concentrated hydrochloric acid. Calculated amounts of aniline and toluidine are mixed together in a porcelain container in the manufacture of magenta, and a definite amount of HCl is added. The mixture of the hydrochlorides is heated to 130° C., when it is transferred to another container in which is present definite amounts of aniline, toluidine, and nitrobenzene. The mixture is heated, usually on an oil bath, to about 100° C., when a theoretical amount of $FeCl_3$ is added. The container is now connected with an air condenser, and the temperature is gradually raised to 180° C., which is maintained for eight hours. After this the mixture is distilled with steam, when the distillate of red oil and nitrobenzene passes over. The melt is now poured into boiling water of known amount, well stirred, and HCl is added. When acidity is obtained, sodium chloride is added and the whole boiled for a short interval. The aqueous solution, which is poured off, contains the hydrochlorides of aniline and toluidine, which, as well as the previous distillates, is commercially used again in the manufacture. The green residue, brittle after cooling, is extracted with boiling water, acidulated with HCl, which dissolves the magenta. Salt is then added to the filtered magenta solution; after standing some time the crude magenta is salted out by this means, and is recrystallized from water containing HCl. The filtrates from the purification of magenta are worked up commercially and sold under the names maroon, cerise, etc. Magenta, chemically known as "homorosaniline

chloride," dyes silk and wool bluish red directly, and cotton, after having been mordanted with tannin and tartar emetic.

In European coke works, especially in Germany, where nearly all the by-products are saved and utilized, modern recovery ovens with condensation plants have a much more universal use than in this country. The majority of the coke plants in the United States have been in the past and, although conditions have been recently materially improved, still are using the bee-hive oven, which conserves absolutely none of the gas, ammonia and tar. It has been definitely proved that the tremendous outlay necessary for the installation of the retort recovery ovens is more than compensated for by the prices received for the by-products or the uses to which they can be put. It is stated that the gas and coke production, provided the latter be equipped with a complete outfit of recovery plants, can together furnish tar and benzol capable of yielding annually approximately 780,000 tons of benzol, 9,600 tons of phenol, 222,000 tons of naphthalene, and 9,000 tons of anthracene; and the minor compounds, cresol, toluol, phenanthrene and carbazol in the customary relative proportions. For years, in this country, millions of gallons of benzol have been employed for enriching illuminating gas, for lack of a better market, when the enrichment could easily have been obtained from other sources. According to government reports, there are over 14,000 establishments in our country which are absolutely dependent upon dyes and colors. These establishments use over $3,000,000,000 capital, and it is estimated that over 2,000,000 men and women work in manufacturing plants which are directly dependent upon the use of artificial colors, and nearly all of these colors are made from coal-tar products.

Of course, we have taken a tremendous stride since the summer of 1914, and the conservation of coal tar and the utilization of its products are matters which have been and are dwelt upon both scientifically and commercially. The first aniline dye, mauve, was discovered by Perkin, in England, in 1856. In 1857 the industry of tar distillation was first established in this country, when Samuel Warren distilled tar in Buffalo. In 1856, likewise, magenta (previously discussed) and fuchsine were discovered. Then followed, in 1863, Hoffmann's violet and Bismarck brown; in 1864 naphthol yellow; and in 1867 the nigrosines. The manufacture of dyes was taken up with great avidity in both Germany and Switzerland. A vast amount of patient, industrious and intelligent research was expended upon the new field. France and England took up the industry with less zeal. In 1871 artificial alizarin appeared and a few years later saw chrysoidine, malachite green, eosin and a number of the current standard dyes upon the market. The United States commenced to consume great quantities of German dyes at this period, and the time was undoubtedly ripe for American enterprise. In Buffalo, in fact, in 1879, the first coal-tar dyestuff establishment was originated. About that time eight other plants went into operation and all of these depended upon European intermediates with the exception of the Buffalo works, which commenced to make aniline oil in 1884 and was forced to cease due to its inability to obtain raw materials. In 1885 only four establishments of this nature were left, and these manufactured on a mighty close margin. Incidentally, these four persevered and are flourishing at the present time. Of course, at the present time this country is manufacturing great quantities of intermediates and dyes

from its own crudes. It is estimated that the production of tar from the coke ovens and gas works of the country will probably amount to about 300,000,000 gallons at the close of 1917, which figures show the strides we have taken along these lines. The production of the 4,375,000 pounds of intermediates, which at the present time represents our monthly output, is an achievement born and grown to its present stature in two years' time. This growth is even more remarkable than that of the dyestuff industry itself, since it was well established, or fairly well, and in the hands of experienced companies years ago. At the present time we certainly are manufacturing a tremendous quantity of dyes. One concern alone, it is stated, has increased its annual output from 3,000,000 pounds to 30,000,000 pounds in the last two years. With regard to the great bulk of heavy chemicals required in the coal-tar dyestuff industry, the United States is now practically independent of the rest of the world. According to special records kept by the *Journal of Commerce*, the remarkable advance which has occurred in the dye and chemical industries of the United States in the last two years is indicated in the fact that capital authorized for new concerns in that period aggregates $186,389,000.

The following is a statement of Mr. Schoellkopf, president of the Schoellkopf Aniline and Chemical Co., which appeared in a recent issue of the *Journal of Industrial and Engineering Chemistry:* "We, as well as the other manufacturers of dyes, have been criticized for not making a greater variety of dyes. Some people seem to have an idea that it is so very simple to produce any shade or quality desired. To be perfectly frank, I think that the progress both as to quality and variety made in the last two years is truly remarkable if one considers the difficulties it has been necessary to surmount. In time and with proper encouragement the American manufacturers will produce every color that is necessary and do it just as well as our foreign competitors did it. In quality our products are absolutely identical with those imported from the other side and in some cases better. As to the *poor* quality of American dyes, the possible 100 dyes made in this country cannot do the work of the 300 or more which were formerly imported. The manufacturers do not claim they will, but many dyers try to make them do that work. The results are very bad and the dyer blames the dyes when, as a matter of fact, he knows better. For purposes of national defense it is absolutely vital that this industry should be developed. It is not just newspaper talk that dye factories can be converted into ammunition plants on short notice. It is, in fact, very reasonable since the same materials are used in producing dyes and ammunition. After the war I believe you will see the industry established in all of the warring countries and the government will, if necessary, even subsidize the manufacturers in order to keep the plants in operation."

A few weeks ago all of the newspapers came out with the startling items about Japan attempting to control the dyestuff industry of the world. This fabrication was engendered by the following news item appearing in the *Oil and Color Trade Journal:* "An enterprise has now been started in Japan under the title of the Japan Dye Manufacturing Co. So far, however, no agreement has been come to between this group and the government as to the exact interpretation of the subvention law (which fixes the subvention at 8 percent of the paid-up capital); it

has not been possible even to commence the erection of the factory building. Apparently, the project has been carelessly handled, and the great difficulties have been disregarded, as well as the question whether Japan possesses sufficient experience to enable her to take up this branch of industry and compete successfully with Germany in the dye trade after the war."

In conclusion, it might be well to attempt to answer the inquiry often raised as to why the natural resources of our country have never been utilized on any extensive scale to meet the needs of American consumers and create a distinctly American coal-tar chemical industry. The blame, I think, rests evenly upon the shoulders both of the manufacturers and the consumers. The former dwelt upon the complexities of the problem, the enormous financial outlay necessary to really progress sufficiently to meet foreign competition, and the possibility of never being able to meet this competition upon an equal basis; and so no direct attempt was ever made to focus national thought in the United States upon the problem. The latter were, as a rule, indifferent since they received dyes sufficient for their needs and perfect in every detail. And so we became dependent upon Germany and annually expended fortunes in the purchase of foreign-made materials.

What mighty changes have been wrought in the condition of this particular branch of industry in the past two years I have attempted to set forth to you in the foregoing brief summary. Miraculous, indeed, has been the upheaval, so great, in fact, that some optimists claim that by 1920 the United States will be in a position to supply itself with all materials of a chemical nature. I certainly hope that their optimism will be justified.

FROM THE LABORATORY OF THE
WM. S. MERRELL CHEMICAL CO.,
CINCINNATI, O.

THE DRUGGIST'S DUTY IN RELATION TO REGULATING AND DISPENSING EMMENAGOGUES AND VENEREAL REMEDIES.*

BY CHAS. F. KUHN, M.D.[1]

This is a subject with which we are all familiar and one that has permeated every form of human society. The proper solution of this problem will, to a great extent, elevate humanity to higher and nobler ideals in life and also avoid much unnecessary suffering and crime.

The promiscuous dispensation of drugs is a gigantic evil, the result of which is producing irreparable harm.

I am sure there are as many men of high character in the drug profession as in the practice of medicine, who could not be persuaded under any circumstance to encourage or assist in this dangerous practice, but inasmuch as the condition actually exists, I offer no apology for this paper.

Emmenagogues are remedies given for the purpose of producing menstruation. The patients applying for them, usually claim to have caught cold and express

---

* Read before Detroit Branch A. Ph. A.

[1] President Samaritan Hospital, Detroit, Mich.

fear of some serious illness if not relieved. Many women apply to physicians for something to bring on their menses. It has always occurred to me that it was a dangerous practice to give even the least harmful preparation known as an emmenagogue. The medical profession believes that most cases of menstrual suppression are due to pregnancy and therefore, no drug should be given for the purpose of producing abortion.

There are instances other than pregnancy causing suppression of menstruation, but they are comparatively rare and of such a nature that only competent medical attention should be sought.

There seems to be a common admission among many women consulting a physician that they had tried various preparations bought at the drug store, which they often exhibit or in familiar terms describe. The hard rubber catheter is frequently used and the user seems free to tell from which drug store it was purchased.

The druggists and physicians bear the same relation to humanity and have the responsibility of using every means to educate the laity regarding the sacredness of pregnancy and the criminal aspect of any attempt to furnish the means of interrupting its course.

The moral degeneracy and suffering caused by these agencies is appalling; chronic invalids, immorality and too often the premature grave covers the penalty paid by the victims, who to a great degree might have been saved.

I am frequently called upon as a surgeon to perform operations for the relief of strictures, abscess of the prostate, urinary fistula, peritonitis, pus tubes and obstruction of the bowels upon patients who often tell me they depended upon drug store medication for the cure of venereal diseases or in taking medicines to produce abortions upon themselves.

Many specific instances might be cited but with your permission I shall report briefly the following cases to illustrate the contention:

Case No. 1—Mrs. G., Age 26; married; mother of one child. Secured from a drug store emmenagogue pills which she took for the purpose of producing abortion. The result was unsatisfactory, so she purchased a hard rubber catheter with which she induced abortion by its introduction into the uterus. She developed peritonitis and died on the 8th day.

Case No. 2—Mrs. K., age 28; married; no children. Used hot mustard water baths, pills obtained at a drug store, and finally a hard rubber catheter which she introduced into her cervix for the purpose of producing abortion. When brought to the hospital she was suffering with peritonitis. After several weeks of severe suffering and impending death, she developed multiple arthritis with deformity of her joints, the result of which has made her a chronic invalid for life.

Many persons suffering with venereal disease applying to the physicians for treatment claim to have used some patent medicine.

The one thought of a patient suffering with gonorrhea is to stop the discharge, believing that when the discharge is checked he is cured. This of course, is erroneous and is later learned with bitter regret, when afflicted with enlarged and painful testicles, inflamed and diseased prostate or an abscess of the prostate, or gonorrheal rheumatism, or severe stricture, any one of which complications usually incapacitates a man for life. Again, some fortunate enough to escape the

terrible complications, marry and inoculate the wife and if a child be born, endanger its eyes to gonorrheal infection which has caused total blindness in many unfortunates.

One of the sad tragedies in life is to meet a young man giving a history of having had a small venereal sore, on which he sprinkled powdered calomel until it disappeared. If a rash broke out he bought a bottle or two of some medicine for his blood and now perhaps five years later he is a chronic syphilitic with permanent organic lesions from which he will never recover. The following cases may be of interest:

Case No. 1—Mr. C., age 24, single. Contracted gonorrhea. He did not consult a physician but purchased medicine to take internally and apply externally and an injection. He continued this treatment for a number of months. I was called to see him and found him suffering with epididmo-orchitis and severe urethal stricture. After a long siege of treatment, an external urethrotomy was performed. The suffering of this young man was indescribable and now after 3 years of untold misery he is an invalid.

Case No. 2—Mr. C., age 25, single. Developed gonorrhea, for the cure of which he purchased preparations. When I saw him he was unable to walk, suffering with gonorrheal arthritis. For over 4 years this young man has been an invalid unable to care for himself, and denouncing patent medicines as being responsible for his condition.

Case No. 3—W. S., age 30; electrician. Contracted a small sore on his prepuce. He applied powdered calomel and took a bottle of blood medicine. In several months the sore disappeared and he thought he was cured, but from that time he had sore throat and mucous patches in his mouth. Several years of poor health compelled him to seek medical advice and to-day he has optic neuritis and is nearly blind. In consequence he is of no value to himself nor the world.

The reasons given by some young men for not consulting a physician are that they are ashamed or do not care to let a doctor know what ails them or some one recommends a patent medicine as a sure cure or they are informed that doctors rob them and prolong their convalescence.

The women are influenced by the high cost of living, the objection to children by landlords, the social tendency of American women and the public sentiment, aroused by popular magazine articles on "Twilight Sleep," robbing mothers of the horrors of childbirth, but which is not practical and only seems to frighten them. Then too, the lectures on birth control tend to discourage women of the desire for motherhood.

For these reasons it is very hard for physicians to convince women that under no circumstances would they aid in the interruption of pregnancy. The same pressure no doubt is brought to bear upon the druggist and you certainly have my sympathy.

The druggists as an organized body should be congratulated for their efforts exerted in relation to many of the former abuses. You have succeeded in the enactment of the Harrison Narcotic Law which all agree is a blessing to humanity. Your effort to enforce the law in reference to the sale of liquors by eliminating its sale is another very heroic evidence of your unselfishness. The careful compounding of prescriptions and detection of physician's mistakes which might prove

fatal is possible only through your knowledge. The exposure of many inert proprietary preparations and safeguarding the public from the indiscriminate dispensing of "shot-gun" preparations are but a few of the virtues attributed to you.

It has been stated that honest confession is good for the soul. Let he who is without fault cast the first stone.

This means that what has been said about the druggist is likewise true of the doctor. I have a vision of the searchlight exposing the traditional weaknesses of our professions and that in the near future a closer and more intimate relationship between druggist and doctor shall result in a greater and better service to humanity.

COST ACCOUNTING.*

BY J. R. WORDEN.

Bookkeeping—cost accounting—is the foundation upon which we must build a business, so we may as well start there.

One thing that I find we're all troubled with is that we *know* a lot of things that are *not* so. It's a wonderfully easy matter to think we know a thing so long that we eventually know it to be so.

Like the fellow who tells a story—makes it out of the whole cloth—knows it's a fake at first—but tells it till he believes it himself.

We know we're making money—on toilet goods—on cigars—on precriptions—on any one or all departments. But *how* do we know it?

In many stores—and not only drug stores by a long shot—and not only among retailers—the only reason we have for believing it to be a fact is because the sheriff hasn't disturbed us yet.

A couple of years ago I asked my grocery man—who also ran a meat market—if his books told him which department made him the most money.

He replied that his books didn't tell him, but that he knew all right which showed the most profit. Inside of six months from that date he had failed. Yet, he had put it over for some time—run along on *guess work* for about three years before the crash came.

That man should not have failed—he had the right idea in selling—gave good service—appreciated the fact that it was the dear public that paid his meal ticket, and treated his customers right. *Guess* work put him out of business.

That little habit of *knowing* when we only think we know is one of the biggest obstacles in almost every man's way. Times—conditions—change—maybe what we knew five years ago isn't so at all to-day. And on those things decided five years ago we have a closed mind.

EXPERIENCE OF A SPECIALTY CONCERN.

It's a good deal like the experience of a certain specialty concern. They found that after a certain length of time, sales began to fall off. So they made a few shifts in the territories and sales immediately picked up.

The reason was this: Smith, we will say, was in Detroit. After two or three years, Smith knew just who would and who would not buy from his house. And,

* Read before the Detroit Branch of the American Pharmaceutical Association.

of course, he didn't waste any more time trying to sell those he knew wouldn't buy.

Smith was transferred to Chicago, and along came Jones to handle this territory. Jones wasn't wise to all the things Smith knew—hadn't any musty pages of precedent to follow—didn't know certain people wouldn't buy from his house. So as one of the officials of that company expressed it, "the damn fool went right in and sold them."

Because we know so much that isn't so is a mighty good reason for having some one, who isn't handicapped with a particle of knowledge of where we are and are not making money, come in and put in an accounting system.

Give him access to all you have. Outstanding accounts, balance in bank, bills payable, stock on hand, and stock in transit—don't hide a thing from him.

And, when Mr. Business Doctor gets through and writes out his little prescription, be almighty careful to follow directions.

Some businesses die. Others, like some men, drag along with one foot in the grave and the other on a banana peel. As a rule the man has gone against the laws of nature and as a rule the business with one foot in the grave has gone against the laws of business. You might disregard the laws of either for a while, but there comes a time of reckoning and then—you're a dead one.

"IF I HAD ONLY KNOWN IN TIME."

Lee E. Joslyn, Referee in Bankruptcy or Undertaker of Dead Businesses, perhaps is better able to give the real reasons why business men fail than most any other man.

He had an exceptionally good article in the April and May *New Ideas* under the heading of "If I Had Only Known in Time." Under the caption of "Guess Work Ruins Many," he says:

The great bugbear of the man who finally terminates his business career in the bankruptcy courts is guesswork. He "guesses" he knows how to run a store; he "guesses" he can get capital enough together by scraping and borrowing to buy a stock and pay the first month's rent; he "guesses" he is making money; and he "guesses" at the amount of stock on his shelves, the debts he owes, and how much he has in outstanding accounts. In fact, he "guesses" at everything.

The retail bankrupt is the best little "guesser" I've ever met. He even beats the farmer who used to guess that the pea was under the middle shell. The farmer had possibly one chance in three to win; the business man has one chance in twenty, figuring on the present financial death rate.

Business is too serious an undertaking to be made a guessing game. It is bread and butter, and perhaps jam, if a man succeeds, and the crusts of failure and bankruptcy if he doesn't.

Mr. Joslyn gives an interview between a Bankrupt and the Court, as follows:

COURT.—Mr. Bankrupt, the best report we could get considering the badly muddled condition of your business, shows that you have assets of about $1,500 and liabilities of more than $4,000.

BANKRUPT (Amazed).—What! You don't mean to tell me it's as bad as that.

COURT.—That's what the report shows. Where did the money go?

BANKRUPT.—I'm sure I don't know. Until a few months ago I thought I was making money.

COURT.—Didn't your books show you otherwise?

BANKRUPT.—I didn't keep any. I didn't wake up to the situation until it was too late. I went into business on small capital. I knew it was dwindling away, but I thought it was going into the business.

Then I began to buy more on credit. My bills got past due, but I didn't think much of it. Business seemed pretty good, and I always thought it would get better. I never figured up to see how much I owed. My debts piled up before I knew it.

When my creditors began to dun me, I quit buying from them and got credit elsewhere. If things got too hot, I borrowed money to pay their bills. Then, the storm seemed to break all at once. If only someone had told me I wasn't making money.

Here are some points that Mr. Joslyn makes:

Make your books a producing factor. Make them tell you where you are overstocked, what lines you ought to handle. If your books tell you you are losing, that is a signal for you to act and act quickly. Either find the leak and stop it or give up if you know your case is hopeless. Don't let your promise die or dry rot.

WHAT DOES YOUR BOOKKEEPING TELL YOU?

I wandered into the store of a friend of mine the other day, and he said, "I have just put in a new system of bookkeeping."

"What does it tell you," I asked.

He replied, "It tells me just where I stand every day. There isn't a thing that I ought to know about the business that it does not tell me. It gives me my business by departments, my profits by departments, my sales by clerks, my outstanding accounts, my cash in bank and money owed, a perpetual inventory; I've got the whole story and every day I know just where I am, whether I am overbuying in some particular department, whether I am extending too much credit. I can't think of a thing that I ought to know that it doesn't tell me."

"What about the cost?" I asked him.

"The cost, well, it just costs me $25 a week less than I was paying, and besides, it gives me a lot of time on the floor that I didn't have before."

This druggist has had a man come in and install this system and keep it up for him. For a certain stipulated amount the man will come over to his store and spend perhaps an hour or two a day in going over his sales, slips and bills and putting his books up to date and showing him each day just where he stands.

Perhaps that system wouldn't do in every store, but there isn't a store in Christendom that shouldn't have some kind of system; if not that one, then some system that tells the boss where he is heading.

There is another point that you are up against. You can't always get good help. Sure you can't. That's one of the hardest things in the world to get—good help—whether for a drug store, a grocery store, a machine shop, or a livery stable. There's another thing to think about. You find *some* men that are always pretty well equipped with good help—and there must be a reason. There *are* several.

THE QUESTION OF TRAINING HELP.

One of the hardest things in the world is to find a clerk, or other assistant that is just the sort of man or woman you want until you train them to your way of doing things. I'll admit there are many who can never be trained, but, on the other hand, there are some who can.

This question of help reminds me of a little corporation up in the state that has been just hanging on by the skin of its teeth for the past few years. The directors of that company have had a number of serious meetings with the manager, and have fired superintendents, foremen and everybody up and down the line

several times—everybody but the manager. The *same* manager and the *same trouble* are still on the job.

The board of directors remind me of a bunch of men out West who lynched a man for horse-stealing. A committee was appointed to notify the widow. The spokesman of the committee rapped on the door and when the widow opened it, he said:

"We have come to inform you that we have just hung your husband for horse-stealing, but you have the laugh on us, for we got the wrong man."

I know a certain employer of labor in this city who has made himself a very wealthy man in the last few years, and I want to tell you it was his system with his help. He believes that if he's got a man in his employ who thinks he's not getting as much money as he's worth, that that man is worth practically nothing to him. He doesn't want any of his employees in that condition of mind—he either fires them or pays them more. More, I say, than they ask for.

FOUR THINGS ARE IMPORTANT.

The attractiveness of your store, the courtesy of your clerks, the line of goods you carry, attractive or poor window displays. Each of these has an important bearing on the question. I have passed by drug stores—passed them by because I was treated discourteously. I have passed by department stores—dry goods stores, because some young lord of creation hadn't the right attitude of mind toward the buyer—he hadn't been *taught*.

I tried for a certain length of time to spend my money in a certain drug store. They had a nice store and they have it yet. But as long as I went in there, I never got acquainted—nobody knew me. It wasn't a downtown store—just a community store, and I lived within three blocks of it. The atmosphere was too chilly. I wanted to go somewhere where they'd say "How-do-you-do" as if they knew me.

I tried another store close by this one, and every time I went in there I found the young man who presided over the soda water fountain discussing the evening's happenings with the young man who took care of the cigar case and when they got good and ready they turned around and looked at me. I would have liked to kick them both outdoors but I passed up the inclination—also the store.

There's another store, just a block away. When I went in there, there was someone ready—"something I can do for you?"—or "what can I do for you?" And there was a smile and the welcome sign seemed to be hung all around the store. I believe I spent more money than I intended. Anyway, I went back again. I don't know how much my business amounted to—but it amounted to something, and I took some other people in there and there's no question but what that same atmosphere and that same "We're here to please you and to see you're taken care of right" affects everybody the same. That man got the business.

Now I don't think he's got any particular pull that gets him all the good clerks. I think he pays them. I think he trains them.

To summarize: If I were starting in the retail business to-morrow I would have for the foundation an accounting system—

Then I would build the superstructure by carefully selecting my help—then recognizing the fact that a good manager must be a good teacher I would train and educate my clerks till they were genuine salespeople, and by contests among

them, or bonuses, or some other plan, I would have them thinking of my store as "our store."

Occasionally when a live wire salesman was in the city for the evening I would arrange a meeting and have him give my boys a talk on merchandising. For a successful salesman will have with him a stock of good ideas that he has gathered in his travels—plans that have proved successful.

Then I would see that articles containing real ideas on selling—service—store advertising, etc., reached and were read by my clerks.

I would constantly work to get them to thinking—to doing *real* thinking—and when they got the habit well formed, my profits would increase.

Then I would get from the county clerk or from the daily paper the lists of births, and every time the stork visited my neighborhood, I would see that a suitable present with a letter over my name went out to Baby Smith.

I would in some way give that store individuality in appearance. I would endeavor to get away from the beaten track—to do something different—to have an occasional original idea.

I would advertise—I would have a mailing list of the best people in my neighborhood—and I'd use it.

And I would roof this superstructure with a kind of greeting and treatment of people that would make them go away saying, "By George, that man knows how to treat his customers."

And then, with my finger on the pulse of the business, if I did make an occasional mistake—which I undoubtedly would, for the man who never makes a mistake, never makes *anything* much—I would know in time to change the medicine and keep out of the hands of the Undertaker of Dead Businesses.

SELLING ALCOHOL WITHOUT INTERNAL REVENUE SPECIAL TAX.*

BY J. O. BURGE.

In order to handle alcohol without special tax, the dealer or manufacturer is required by the Internal Revenue Department to observe and conform to the following rules and regulations:

First, no more alcohol must be used in the preparation than is actually necessary for the purpose of extraction, solution or preservation of the medicament.

Second, each fluid ounce of the preparation must have an average U. S. P. dose for an adult of some drug or drugs of recognized therapeutical value, either singly or in combination.

So long as the preparation conforms to these two requirements, the "special tax" of a retailer is not required, provided the preparation is sold for genuine medical purposes. But remember, for example, if U. S. P. Tincture of Ginger, or any similar preparation is sold for beverage purposes or under circumstances which would lead the seller to suspect it is being used as a beverage, then the seller would become liable for the "special tax" as a liquor dealer.

Pharmacists may carry wines and distilled spirits in stock for the manufacture of U. S. P., N. F., and other preparations, and for compounding *bona fide* prescriptions, without the "special tax," provided sufficient drugs are used in the

* Read before Nashville Branch A. Ph. A., April meeting, 1917.

alcohol before its sale to render it unfit for use as a beverage. But they cannot sell spirituous liquors or wines not so compounded, even on a physician's prescription, and for purely medical purposes, without the *special revenue license*.

In order to exempt the pharmacist from this special tax, the Internal Revenue Department has approved of the following combinations, by which the alcohol is so denatured that it may be used for bathing and general antiseptic purposes, the intention being that the prescription shall specify the nature and amounts of the ingredients desired in the compound:

1—Alum, 10 grains; Camphor, 3 grains; Alcohol, 4 ounces.
2—Carbolic Acid, 1 part; Alcohol, 99 parts.
3—Formaldehyde, 1 part; Alcohol, 250 parts.
4—Alum, 2 ounces; Zinc Sulphate, 1 ounce; Alcohol, 1 gallon.
5—Alum, 1 drachm; Camphor, 1 ounce; Alcohol, 1 pint.
6—Mercuric Chloride, 1 part; Alcohol, 2000 parts.
7—Alum, 2 ounces; Salicylic Acid, 2 ounces; Oil Gaultheria, 2 ounces; Water, 1 pint; Alcohol, 1 gallon.
8—Carbolic Acid, 2 drachms; Oil Gaultheria, 20 drops; Alcohol, 1 gallon.
9—Mercuric Chloride, 1 1/2 grains; Hydrochloric Acid, 2 drachms; Alcohol, 4 ounces.
10—Sodium Bicarbonate, 3 ounces; Hamamelis Water, 16 ounces; Water, 16 ounces; Alcohol, 16 ounces.
11—Formaldehyde, 2 parts; Glycerin, 2 parts; Alcohol, 96 parts.
12—Oil Cajuput, 1 drachm; Alcohol, 1 pint.
13—Tannic Acid, 12 parts; Alcohol, 125 parts; Water, 125 parts.
14—Carbolic Acid, 1 drachm; Tannic Acid, 1 drachm; Alcohol, 1 part; Water, 1 part.
15—Alum, 1/2 ounce; Formaldehyde, 2 drachms; Camphor, 1 ounce; Alcohol, 1 part; Water, 1 part.
16—Lysol, 1 part; Alcohol, 99 parts.
17—Compound Solution of Cresol, U. S., P., 10 Cc.; Alcohol 1000 Cc.

In the April 1916 number of the JOURNAL OF THE A. PH. A. appears the following formula which was adopted by the Denver Branch, A. Ph. A.: Antimony and Potassium Tartrate, 1 gramme; Formaldehyde, 4 mils; Water, 125 mils; Alcohol, to make 1000 mils.

The label adopted reads as follows: "Bathing Alcohol. For External Use Only. Poisonous if taken internally. Pure Grain Alcohol, modified to comply with the Federal Regulations." (Label printed in red.)

EFFECT OF THE RAYS OF THE SUN UPON THE FORMATION OF AMYGDALIN IN WILD CHERRY BARK.

BY C. VERNE NICHOLS.

The fact that the bark of "*Prunus Virginiana*" or Wild Cherry, as well as the almond and the peach pit contains a glucoside, which when brought into contact with water in the presence of the accompanying ferment, will produce hydrocyanic acid as one of the reactionary products, is well known. It, too, is well known that the bark collected from different portions of the same tree will yield different amounts of this deadly poison. One writer has shown that the bark of the roots contains the largest proportion of this glucoside which yields hydrocyanic acid, and that the bark from the twigs contains a greater proportion than that from the trunk of the tree. The author will not attempt to explain the cause of this difference but it is presumable that the basis for such a difference is the effect which the rays of the sun has upon the formation of the glucoside.

It will undoubtedly be of interest to some to know that the yield of the glucoside (or of the hydrocyanic acid) from the bark of the different sides of the same tree is not the same, the amount obtained from the north side exceeding that obtained from the opposite side. By comparing the amounts of both hydrocyanic acid and amygdalin in samples of bark taken from both the north and south sides of three different trees, a fairly accurate conclusion may be drawn as to the action of the sun upon this formation and as to the accuracy of the presumption. In order to prove this point beyond the question of a doubt, however, it would be necessary to carry out several times the number of determinations that were made by the author.

The samples used were collected during the month of November, being removed from the trunks of trees at a height of about six and a half or seven feet from the ground. These were dried in an atmosphere slightly above room temperature; when dried they were ground to moderately fine powders and small amounts varying from 5.5 Gm. to 10.4 Gm. were placed in liter flasks, 100 mils of water added, the flasks stoppered securely and set aside to macerate for 24 hours at room temperature. Each flask was, in turn, placed on a water bath and connected with a condenser, a second flask was so arranged that steam might be passed to the bottom of the first flask and after all of the connections were made, the water bath was heated to boiling and a current of steam was passed through the flask.

The distillate, which was collected in a small Erlenmeyer flask containing 10 mils of tenth-normal silver nitrate V. S. and 40–50 mils of distilled water, was received by means of a delivery tube reaching to the bottom of the solution which absorbed the hydrocyanic acid. After obtaining 50–60 mils of the distillate, the excess of the silver nitrate solution was determined by the "Volhard Method of Residual Titration," which, briefly, is carried out by acidifying the solution with nitric acid, adding a few mils of ferric ammonium sulphate T. S. for use as an indicator and determining the uncombined excess of silver nitrate V. S. by titrating back with a tenth-normal potassium sulphocyanate V. S. until the end-reaction is reached. This end-reaction, according to the United States Pharmacopoeia, is the formation of a permanent pale reddish tint. The number of mils of tenth-normal silver nitrate V. S. minus the number of mils of tenth-normal potassium sulphocyanate V. S. equals the number of mils of the silver solution which react with the hydrocyanic acid. Each mil which is used up represents 0.002702 Gm. of hydrocyanic acid, then the number of mils of the silver solution neutralized multiplied by the factor gives the number of grams of hydrocyanic acid present in the given amount of bark. By proportion, the percentage of acid may be determined as shown by the following figures, which are those of the sample taken from the south side of "Tree No. 1:"

Weight of bark taken 9.9790
Mils of $N/10$ $AgNO_3$ absorbed 6.5000
$0.002702 \times 6.5 = 0.017563$ Gm. of hydrocyanic acid in the bark used.

Wt. of bark used : Wt. of HCN found :: 100 : x

$9.9790 : 0.017563 :: 100 : x$

$9.9790\,x = 1.7563$

$x = 0.175998$ percent of hydrocyanic acid in the bark.

The reaction of the emulsin upon the amygdalin in the presence of water to form benzaldehyde, hydrocyanic acid, and glucose is shown by the following equation:

$$C_{20}H_{27}NO_{11} + 2H_2O + \text{emulsin} = C_6H_5CHO + HCN + 2C_6H_{12}O_6$$

If the percentage of hydrocyanic acid is known, the percentage of amygdalin may be determined by the use of the following proportion, since each molecule of amygdalin yields one molecule of hydrocyanic acid:

Amygdalin : Hydrocyanic acid :: y : 0.175998
$C_{20}H_{27}NO_{11}$: HCN :: y : 0.175998
457.226 : 27.018 :: y : 0.175998

$$27.018\ y = 80.4708$$

y = 2.9782 percent of Amygdalin in the sample.

By like proportion the percentages of hydrocyanic acid and amygdalin were found in the other samples, the results of the twelve determinations being as follows:

Tree No. 1.....	South side	HCN 0.1760%	Amygdalin 2.9782%
Tree No. 1.....	Check	HCN 0.1740%	Amygdalin 2.9441%
Tree No. 1.....	North side	HCN 0.2125%	Amygdalin 3.5958%
Tree No. 1.....	Check	HCN 0.2097%	Amygdalin 3.5458%
Tree No. 2.....	South side	HCN 0.1806%	Amygdalin 3.0563%
Tree No. 2.....	Check	HCN 0.1800%	Amygdalin 3.0454%
Tree No. 2.....	North side	HCN 0.2188%	Amygdalin 3.7027%
Tree No. 2.....	Check	HCN 0.2161%	Amygdalin 3.6204%
Tree No. 3.....	South side	HCN 0.1682%	Amygdalin 2.6468%
Tree No. 3.....	Check	HCN 0.1709%	Amygdalin 2.8921%
Tree No. 3.....	North side	HCN 0.1890%	Amygdalin 3.1981%
Tree No. 3.....	Check	HCN 0.1804%	Amygdalin 3.0534%

The above series of determinations tends to show that the theory regarding the action of the sun upon the formation of the glucoside, amygdalin, in Wild Cherry Bark, is correct.

UNIVERSITY OF OKLAHOMA,
SCHOOL OF PHARMACY.

NEW YORK COLLEGE OF PHARMACY OFFICERS

At the annual meeting of the New York College of Pharmacy, held recently, the following officers were elected: President, Nicholas Murray Butler; Vice-President, Prof. Chas. F. Chandler, Dr. William Jay Schieffelin, and Dr. H. C. Lovis; Treasurer, Clarence O. Bigelow; Secretary, Thomas F. Main; Assistant Secretary, Charles W. Holzhauer; Trustees, Jacob Weil, F. K. James, Irving McKesson, Theodore Weicker and Edward Plaut.

CONTRIBUTED AND SELECTED

THE IDENTIFICATION OF VOLATILE OILS AND THEIR DERIVATIVES IN THE ANALYSIS OF MEDICINAL PREPARATIONS.

BY E. K. NELSON.

In the analysis of medicinal preparations the chemist is obliged to rely to some extent on his sense of smell. This is especially true in the detection of the essential oils. The odor is one of the most characteristic properties of a volatile oil, yet the nose is not always able to distinguish the presence of different oils in a mixture, especially if some of them are weak in odor, or present in small proportions. Also some substances of different classes possess quite similar odors as, for example, camphor (a ketone), and borneol (an alcohol).

As a number of volatile oils, or derivatives of them, are used in medicine for their therapeutic or antiseptic value, it is quite important that their detection be rendered as certain as the present state of our knowledge will permit.

The use for which the preparation is recommended will often be a guide to the analyst in determining what volatile oils are likely to be present.

If, by chemical methods, we can separate the volatile oil mixture into several groups or classes of compounds, such as phenols, aldehydes, etc., the odor of the products of such a separation affords a fairly safe means of determining its composition, even when there is insufficient material available to make any further examination.

The methods herein described are of a general character and are designed to assist in the examination of the volatile oil mixture obtained by the distillation of a medicinal preparation with steam. In case volatile oils are used merely as flavoring agents their identification is not so important, and they will be present in small quantity. But if used for their medicinal or antiseptic effect it will be desirable to obtain as large an amount as possible for the examination. A liberal sample of the preparation, neutralized if acid or alkaline, is submitted to steam distillation and the undissolved oily layer separated from the distillate.

The physical constants of the volatile oil mixture are first determined. The density is taken with a small Sprengel tube. The optical rotation and index of refraction are determined, and the boiling temperature is taken, keeping the fractions separate for each 10° difference and noting the amount and odor of each fraction. This will often afford a clue to the nature of the mixture and perhaps direct attention to some of the components.

ALDEHYDES (AND SOME KETONES).

Separation.—The oil (or a suitable fraction) is shaken with an equal volume of a saturated solution of sodium hydrogen sulphite in a separatory funnel and allowed to stand with occasional shaking for from 8 to 12 hours. If crystals separate they are filtered off; the aqueous layer is separated and the crystals added. To this solution add sufficient sodium carbonate to neutralize the acid sulphite, and distil with steam. Aldehydes will pass over into the distillate and will usually be recognized by their odor.

Benzaldehyde will indicate oil of bitter almonds; cinnamic aldehyde, oil of

cassia; pulegone, oil of pennyroyal; methyl nonylketone, oil of rue; thujone, oils of tansy, wormwood, or sage. (The last three are ketones which react like aldehydes with sodium hydrogen sulphite.)

ALDEHYDES: IDENTIFICATION.

Benzaldehyde: Liquid, b. p. 733 mm. 177°; *d.* 15°/15°, 1.050–1.055; m. p. of semicarbazone, 214°; easily oxidized to benzoic acid.

Cinnamic aldehyde: Liquid, b. p. 252°; $d_{15}°$, 1.054–1.058; m. p. of semicarbazone, 208°; oxidized by cold potassium permanganate to benzaldehyde and benzoic acid.

Citral: Liquid with lemon-like odor; b. p., 228–229°; m. p. of α-citryl β-naphtho cinchoninic acid, 200°.

ALDEHYDES: DETERMINATION.

Aldehydes and certain ketones (pulegone, carvone) can be estimated by the neutral sulphite method of Burgess.[1]

PHENOLS: SEPARATION.

The oil left in the separatory funnel after treatment with sodium hydrogen sulphite, is shaken with two or three times its volume of a five percent solution of potassium hydroxide. After the undissolved oil has separated the aqueous layer is filtered through a wet filter and a slight excess of dilute hydrochloric acid is added. A turbidity at this point will indicate the presence of phenols. Methyl salicylate separates with the phenols.

If the odor indicates the presence of methyl salicylate take up the separated phenols in a little ether; separate the ether solution and transfer it to a small flask; add from 5 to 10 Cc. of 5 percent potassium hydroxide solution and warm on a water bath under a reflux condenser to saponify the ester. Then pass in carbon dioxide to saturation and extract the phenols (free from methyl salicylate) with ether. Acidify the aqueous solution and extract with ether; if methyl salicylate is present a residue of salicylic acid will be left on evaporating the ether, which can be identified by its melting point and by the violet color its solutions give when treated with ferric chloride solution.

If methyl salicylate is not present the saponification is omitted. Evaporate the ethereal solution containing phenols at room temperature. The phenols which may be encountered include thymol and carvacrol (from oil of thyme), eugenol (from oil of cloves), and diosphenol (from oil of buchu). Observe whether the separated phenol shows any tendency to crystallize (thymol, diosphenol). Thymol and diosphenol may be separated from the more "acidic" phenols as follows: Dissolve the mixture in 5 percent potassium hydroxide solution and distil with steam. Thymol and diosphenol will come over from the alkaline solution while ordinary phenol and most of the eugenol will remain in the distilling flask and can be recovered with ether.

PHENOLS: IDENTIFICATION.

Thymol: Crystalline, m. p. 50.5–51.5°. Identify by U. S. P. test (greenish blue color on adding one drop each of sulphuric and nitric acids to its solution in glacial acetic acid).

[1] *Analyst*, 29, 78, 1904; "The Volatile Oils," Gildemeister and Hoffman, 2nd edition, Vol. I, English translation, pp. 581–590.

Carvacrol: Liquid isomer of thymol, odor like thymol.

Diosphenol: Crystalline, m. p. 83°, peculiar minty odor. With ferric chloride its alcoholic solution gives a dark green color. Its solutions reduce ammoniacal silver nitrate and Fehling's solution.

Eugenol: Liquid, odor of cloves, m. p. of benzoate, 69–70°. Its alcoholic solution gives a blue color with ferric chloride.

PHENOLS: DETERMINATION.

The shrinkage in volume on shaking a measured quantity of the oil with 5 percent sodium hydroxide solution will indicate the proportion of phenols present. (See U. S. P. under Oleum Thymi.)

KETONES: SEPARATION.

The oil remaining after the extraction of aldehydes and phenols is now to be used for the separation of ketones. Advantage is taken of the property which ketones have of combining with semicarbazide to form crystalline, more or less difficultly soluble, and difficultly volatile semicarbazones. From $^1/_4$ to 1 gramme of semicarbazide hydrochloride and an equal amount of sodium acetate are dissolved in the least possible amount of water. The oil or its fraction (not over 5 Cc.) is added and enough alcohol is stirred in to give a clear solution. (Some NaCl may be precipitated.)

Let the mixture, which should be in a small stoppered flask, stand 12 to 24 hours and then dilute with water. If much ketone is present the oil which separates will soon crystallize more or less completely. If crystals separate, filter. In any event separate the oil, transfer it to a distilling flask, and distil with steam until the volatile oil is removed. If any ketone is present a crop of crystals should now separate from the residue left in the distilling flask if it is cooled and shaken. Filter off the crystals in a Büchner funnel and unite with any that may have separated previous to distillation.

To recover the ketones from their semicarbazones, transfer the semicarbazones to a saponification flask, reserving a portion for melting point and other determinations. Add from 5 to 10 Cc. of 25 percent sulphuric acid, stopper the flask, and heat on the steam bath until the crystals are decomposed. If camphor was present alone or in preponderating amount, it can be seen sublimed into the neck of the saponification flask. Cool and open the flask and note the odor.

KETONES: IDENTIFICATION.

Carvone: Liquid, from caraway and spearmint oils, b. p. 230–231°; m. p. of oxime, 72°.

Pulegone: Liquid, from oil of pennyroyal, minty odor, b. p. 222–223°; m. p. of semicarbazone, 168°.

Menthone: Liquid, from peppermint, pennyroyal, and buchu oils, minty odor, b. p. 207–208°; m. p. of semicarbazone, 184°.

Camphor: Crystalline, from camphor and rosemary oils, m. p. 175–176°; m. p. of semicarbazone, 236–238°; m. p. of oxime, 118–119°.

Thujone: Liquid, from the oils of thuja, wormwood, tansy and sage, peculiar odor like wormwood, b. p. 200–201°; m. p. of α-thujone semicarbazone, 186–188°; m. p. of β-thujone semicarbazone, 174–175°; can be identified by the method of Enz.[1]

[1] *Schweiz. Wochenschrift für Chem. u. Pharm.*, 49, 337, 1911.

Methyl nonyl-ketone: Liquid, from oil of rue, odor like oil of rue, b. p. 226°, m. p. +13.5°; m. p. of semicarbazone, 123–124°; m. p. of oxime, 46–47°.

KETONES: DETERMINATION.

The total quantity of ketones and aldehydes present can be estimated by the hydroxylamine titration method.[2]

This method will include those ketones which do not react with sodium sulphite or sodium hydrogen sulphite. In determining camphor by this method the results are found to be low.[3]

ALCOHOLS, ESTERS, ETHERS AND OXIDES.

The volatile oil remaining unacted on by the previous methods of treatment may contain alcohols (as menthol, sabinol, santalol, borneol and terpineol), esters (as menthyl acetate, and bornyl acetate), and phenol ethers (as methyl chavicol, safrol, anethol, and apiol), or oxides (as cineol).

Previous to the further examination of the oil it should be saponified by boiling with an excess of alcoholic potassium hydroxide in order to decompose any esters present. The alcoholic solution is then diluted with sufficient brine to precipitate the oil completely, and the brine solution can be used for the identification of organic acids derived from esters.

There is no good general method for separating the alcohols as a class, and the further examination will therefore be governed by the judgment of the analyst as to what alcohols are likely to be present.

The primary alcohols, such as geraniol, can be separated by the calcium chloride compounds or as acid phthalic esters, provided they are present in sufficient amount (at least 25 percent of the mixture).

The conversion of alcohols into esters difficultly volatile with steam will be successful in some cases. Thus by heating menthol with benzoic anhydride for two hours at 160–170° menthyl benzoate is formed, and by distilling the mixture with steam the ester, being less volatile, remains in the distilling flask, is separated, and the menthol recovered by saponifying. The same method is, of course, applicable to any of the more stable alcohols provided they are esterified under these conditions and give benzoates slightly volatile with steam. The identification of the tertiary alcohols is even a more difficult matter, as they are more or less dehydrated on heating with acid anhydrides, but they are not often encountered in a medicinal preparation. When obtained in fairly pure form the alcohols may be characterized by the melting points of their phenyl urethanes. Sabinol is the alcohol occurring in oil of savin, and since this oil is frequently employed as an abortifacient it should not be overlooked. The best chemical method for identifying sabinol (which the writer has used successfully in one case) consists in oxidizing it by means of potassium permanganate to α-tanacetogen dicarboxylic acid (m. p. 140°). A mixture of the product with some of the known compound showed no depression in the melting point, which was considered sufficient proof of the presence of oil of savin in the preparation.

Safrol may be found in the higher boiling fractions of the oil, its boiling point being 233°. The characteristic odor of safrol will serve to direct attention to it,

[2] Nelson, *Jour. Ind. Eng. Chem.*, 3, 588, 1911.

[3] U. S. Dept. Agr., *Bur. of Chem. Bull.* 162, 208, 1912.

and it can be identified by its oxidation product, α-homopiperonylic acid which melts at 127–128°. This is obtained by the oxidation of safrol with potassium permanganate. Another phenol ether which may be encountered in medicinal preparations is apiol. This boils at 294° and will therefore be found in the last fraction of the oil. Apiol has a faint parsely odor. On boiling with alcoholic potassium hydroxide apiol is converted into isoapiol which melts at 55–56°. Tri-brom apiol melts at 88–89°. Unless present in relatively large amount its identification, on account of its faint odor, is very difficult.

Cineol (b. p. 175°) is separated in the first fractions of the oil. Its odor, which suggests eucalyptus oil, may direct attention to it if there is not too much interfering material. Cineol is an important constituent of eucalyptus and cajeput oils and is often used in medicine in pure form, being more commonly known as eucalyptole.

It combines with phosphoric or arsenic acid giving unstable crystalline compounds from which cineol can be recovered by adding warm water. Its iodole compound (m. p. 112°) is characteristic, but rather difficult to prepare from impure cineol.

VOLATILE OILS OF THE U. S. P. (1916) 9TH REV.

Name.	Characteristic ingredient.
Bitter almond	Benzaldehyde
Anise	Anethol
Orange	Citral, citronellol, limonene
Cade	Sesquiterpenes
Cajuput	Cineol
Caraway	Carvone
Cloves	Eugenol
Cinnamon	Cinnamic aldehyde
Chenopodium	Ascaridol
Coriander	Linalol, pinene
Cubeb	Cadinen
Eucalyptus	Cineol
Fennel	Anethol, fenchone
Juniper	Cadinene, pinene
Lavender	Linalyl acetate
Lemon	Citral, limonene
Peppermint	Menthol, menthone, menthyl acetate
Spearmint	Carvone
Myristica	Terpenes, myristicin
Tar	.....
Pimenta	Eugenol
Pine needles	Pinene, sylvestrene, etc.
Rosemary	Borneol, camphor, bornyl acetate
Sandalwood	Santalol
Sassafras	Safrol
Mustard	Allylisothiocyanate
Turpentine	Pinene
Thyme	Thymol, carvacrol

SULPHUR COMPOUNDS, MUSTARD OILS.

The esters of isothiocyanic acid, characterized by their penetrating odor, constitute a special group of sulphur compounds.

Volatile mustard oil obtained from black mustard, *Brassica nigra*, is mainly

allylisothiocyanate, and as this boils at 151° it will be found in the first fraction of the oil and will be recognized by its pungent odor.

After completing the examination of the volatile portion of a preparation it is often impossible to say whether some of the compounds found were used in the pure form or as ingredients of volatile oils. This is especially true of compounds such as camphor, thymol, menthol, or cineol which are often used in medicinal preparations.

For the guidance of the analyst in determining from his results what volatile oils are probably present, a list of the oils of the Pharmacopoeia, with their characteristic ingredients, is given.

LABORATORY OF ESSENTIAL OILS, BUREAU OF CHEMISTRY,
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

THE ANALYSIS OF PROPRIETARY MEDICINES.

AN OUTLINE.

BY W. S. HUBBARD.

For the examination of secret remedies there is not available any comprehensive work corresponding to the many good books on the subject of food analysis.

The number of substances which may be found in any mixture and the almost unlimited range of possibilities in the way of combinations of materials in different preparations sold for the same purpose makes it impossible to give any rigid procedure for the examination of such products. Nevertheless, certain tests and methods of examination which have been found useful can be described. The suggestions here presented were arranged primarily for the use of analysts in the Bureau of Chemistry who might have occasion to examine secret preparations sold for the treatment of various diseases.

There are certain determinations in the analysis of preparations of drugs which should always be made and other determinations which may be desirable, depending upon the medicinal claims or the use to which the preparation is to be put. Certain substances are very likely to be found in any such preparations, regardless of the use for which they are recommended. Suggestions as to the probable active constituents may be obtained by consulting the "Index to Diseases" in some Dispensatory or Materia Medica. When possible, tests should be made for each drug so mentioned. The absence of a drug generally used in treatment of conditions for which the remedy is recommended is often as important to establish as its presence. Very often by referring to "*Die Pflanzenstoffe*," Wehmer (1911), or to articles appearing more recently in the journals, it will be found that there are substances characteristic of certain drugs for which tests may be made. The finding of a certain ingredient does not always prove that a particular drug is present, but the absence of this ingredient will show the absence of the drug. This fact is very important when considering the medicinal claims. Of course account must be taken of any change this ingredient could undergo during manufacture. Bearing in mind the limitations mentioned, the following outline is offered as a general guide for the examination of proprietary medicines:

LIQUID PREPARATIONS.

The tests and determinations which should be made in all cases are:

Preliminary tests	Alcohols
Non-volatile matter	Emodin
Ash	Gums
Sugars	Resins
Glycerol	Color substances
Chloroform extract from acid solution	Volatile oils
Chloroform extract from alkaline solution	Inorganic material

Preliminary Tests.—The odor and taste of the preparation should be tested first, since these often help in the identification of the ingredients. A test should be made to ascertain the reaction, whether alkaline, acid or neutral.

Non-Volatile Matter.—The non-volatile matter or total solids should be determined preferably in a silica or well-glazed porcelain dish. In medicinal preparations substances which attack platinum are often present and some organic phosphorus compounds are always present in plant material and when ashed may attack a platinum dish. For the majority of preparations it is best to conduct the evaporation at or near 70° C. *in vacuo*.[1] Choose the amount of material so that the final weight of solids will be about 0.5 Gm. Dry to constant weight. With certain materials present it is practically impossible to obtain a constant weight and especially is this true of glycerol. When preparations contain large amounts of sugars it is best to evaporate to a syrupy consistency before putting in the vacuum oven. In some cases it is advisable to mix with sand. The sum of the non-volatile ingredients quantitatively determined should equal the amount of non-volatile material originally found. It is not always possible to secure an exact agreement between these figures, but an attempt should be made to approximate it as nearly as possible.

Ash.—The determination of ash is quite essential and very valuable in most instances if carried out properly. The method used in obtaining an ash depends upon the end in view and, therefore, varies with different products. The United States Pharmacopoeia, 9th Edition, page 589, describes a method of obtaining ash and it is the method which should be used in pharmaceutical preparations. A plant ash will be alkaline and usually contain small amounts of iron, sodium, potassium, and calcium salts, phosphates and chlorides with traces of magnesium and aluminum salts and silica. The degree of alkalinity is quite often of importance to determine whether alkalinity is due to plant material or to an added substance, either organic or inorganic. The original substance may be alkaline, a fact which should have been determined in the preliminary examination. When the ash is above 1 percent it is well to make quantitative determinations of the principal ingredients. Qualitative tests for the constituents should always be made no matter how small the amount of ash.

Sugars.—It is safe to say that a majority of the preparations contain some sugar. The methods used are those of *Bur. Chem. Bull.* 107[2] except that a definite volume may be taken. The sugars should be determined by means of the polariscope as well as gravimetrically.

Glycerol.—Glycerol may usually be detected by the behavior of the non-volatile matter. The best qualitative tests for the identification of glycerol are those of M. G. Denigés.[3] The quantitative method for wines[4] is generally ap-

plicable to medicinal preparations. A duplicate determination is made and after weighing is made up to definite volume and determined with the immersion refractometer and reference to Wagner's "*Tabellen Zum Eintauch-Refractometer*," Sondershausen (1907).

Alcohol.—The determination of alcohol must be carried out with care, since medicinal preparations usually contain a great variety of substances. The official method is that of the United States Pharmacopoeia, 9th ed., 592. The specific gravity determination should be supplemented with one made with the immersion refractometer to prove the presence or absence of methyl alcohol.[5]

Acid Chloroform Extract.—The alcohol is evaporated from a quantity of the preparation by heating on a water bath and the residue placed in a separatory funnel. It is made distinctly acid with normal sulphuric acid, shaken out several times with chloroform, using about 25 Cc. the first time and less the succeeding times. Most of the chloroform is distilled off, the remainder is transferred to a beaker and evaporated to dryness on a water bath. If any considerable amount of material is extracted it is well to purify by dissolving the residue in water and shaking out again. In some cases it is desirable to substitute ether for chloroform since some phenols are more soluble in this solvent. Caffeine, berberine, hydrastine, antipyrin, acetanilid, phenacetin, salicylic acid, benzoic acid, salol, phenol, cresols, guaiacol, and hexamethyleneamine are among the more important substances extracted by chloroform. Phenacetin, phenol, cresols, guaiacol, and salol are very slightly soluble in water. Phenacetin and salol are very seldom found in liquid preparations. For the estimations of caffeine, antipyrin and some of the other more common synthetic drugs, the work of W. O. Emery[6] and his co-workers should be consulted.

Alkaline Chloroform Extraction.—The original material which has been made acid and extracted with chloroform is now made alkaline with ammonia and again extracted with chloroform, using the procedure as described in the acid extraction. A second purification is necessary and sometimes even a third or fourth. After all extractions are made, the chloroform must be washed two or three times with water. When cocaine is present, ether, petroleum ether, or benzene is preferable to chloroform and care must be taken not to hydrolyze the cocaine. The purified material is dissolved in a very slight amount of 0.5 N or 0.1 N sulphuric acid and tested for alkaloids with Wagner's, Mayer's, picric acid, phosphomolybdic acid and other alkaloidal test solutions. Wagner's and Mayer's reagents are the most common, and while either precipitates nearly all of the alkaloids it sometimes happens that the quantity of alkaloids present is very small and the precipitate with Wagner's or Mayer's reagents is so slight that it may be overlooked, while some other reagent may give a precipitate which is quite distinct. It should be remembered that morphine may not be found here since it is only very slightly soluble in chloroform. Berberine and hydrastine may come out here as well as in the extract from the acid solution. Care must be used in the extraction of alkaloids since a number are easily destroyed by heat, or by excesses of acids or alkalies.

Emodin.—Since it is estimated that at least 50 percent of the nostrums contain a vegetable cathartic it is important that a test be made for them.[7]

Gums.—If the preparation contains much alcohol there cannot be any con-

siderable amount of gum present. To one or two cc. of material add alcohol. Any precipitate formed should be filtered off, washed with alcohol, dissolved in the smallest quantity of water possible and reprecipitated with absolute alcohol. From the nature of the precipitate it is usually possible to distinguish a gum. An article by L. A. Congdon[8] is helpful in many instances.

Resins.—If the material is an aqueous solution, then it can not contain much resin. To one or two cubic centimeters of material add water until there is no further precipitation. Wash the precipitate with water, dissolve in a small quantity of absolute alcohol and reprecipitate with water.

Coloring Material.—The coloring material most frequently met with in nostrums is caramel. This is identified according to the method of Amthor.[9] Alkanet, cudbear, cochineal and carmine are also frequently found in this class of preparations.

Inorganic Material.—The inorganic material can be determined in the ash in many cases. It is well in making qualitative tests to run the material through the group separations.

Arsenic.—The Gutzeit test is usually used in qualitative work.[10] A very rapid and accurate quantitative method in which arsin is passed into a solution of mercuric chloride and the resulting calomel weighed, is that of Claude R. Smith.[11]

Antimony.—Some of the material is made acid with hydrochloric acid, a platinum strip is placed in the solution and on top of this is placed a piece of pure zinc, forming a platinum-zinc couple. Any good text on qualitative analysis will give this method in more detail. It is well to carry on another test to which has been added a very small amount of antimony, say the minimum dose of tartar emetic, and also a blank with the reagent. The test is very sensitive and may be carried out in the presence of large amounts of organic material.

Volatile Oil.—If volatile oils or other volatile materials are present they can usually be detected during the determination of alcohol either by the odor or color of the distillate, which in some cases has a milky appearance. When volatile oils are present in considerable quantity or it is of importance that their identity be known, the method* of Alfred Hoffman[12] is helpful rather than such large works as Gildemeister[13] and Hoffman.

POWDERS, PILLS AND TABLETS.

Determination of, separation of, or tests for the following are made:

Preliminary tests	Chloroform extract from acid solution
Coating	Chloroform extract from alkaline solution
Non-volatile material	Emodin
Ash	Gums
Sugars	Resins

INORGANIC MATERIAL.

Preliminary Tests.—The preliminary tests given under Liquid Preparations should be supplemented in the case of powders, pills and tablets by grinding to a fine powder and examining under a microscope for starch and plant or animal tissue. Very frequently several different crystalline compounds can be found, thus giving some idea of the number of ingredients present. Tests of solubility in the more common solvents should be made.

* The best method for volatile oil, however, is that given in a paper by E. K. Nelson, appearing in this issue.

Coating.—The coating from pills and tablets should be removed when possible. This can usually be done by soaking in water and then scraping carefully with a knife. The average weight before and after removing the coating should be determined. Qualitative tests should be made for all probable ingredients of the coating. The usual coating is made of starch, sugar or calcium carbonate and sometimes all three. It is frequently colored and flavored. Special coatings are employed in certain cases, as for enteric pills or tablets, which are coated with salol, a fat, stearic acid, or other material which will not dissolve before reaching the intestines.

Non-Volatile Material.—In determining the non-volatile material as in all determinations of pills and tablets it is best to remove the coating and then powder before proceeding. As a general rule there is very little volatile material present, except moisture or water of crystallization. When water of crystallization is present the drying should be conducted at a temperature sufficiently low to avoid loss of this water or at such temperature that it will be completely driven off. In the latter case care must be taken that the temperature is not great enough to injure other ingredients. The conditions should be recorded.

Ash.—The method is the same as that given under Liquid Preparations.

Sugars.—A great many pills and tablets are sugar-coated and if sugar is found in the coating it should be so noted. In powders and tablets, especially uncoated tablets, lactose is more often used than sucrose.

Chloroform Extract from Acid Solution.—In a large number of cases it is not necessary to use a solution of the material or to make acid; it is sufficient to extract directly with chloroform. If an alkaloid is present with other material it is well to convert the alkaloid to a salt by the addition of acid before extracting the other material with the chloroform. The references have already been given under Liquid Preparations.

Chloroform Extract from Alkaline Solution.—For alkaloids it is best to first dissolve out soluble substances from the sample in about 0.05 *N* sulphuric acid, and then make the solution alkaline and extract with chloroform as directed under Liquid Preparations.

Emodin.—The powdered material may be moistened with hydrochloric acid and emodin extracted directly. (*Loc. cit.*)

Gums, Resins and Inorganic Material.—Tests for these substances are made by the methods used for Liquid Preparations. It must be borne in mind that some of the materials used as excipients, adhesives, disintegrators, absorbents, lubricants and fillers may be found here.[14]

The outline given above is suggested as a general procedure and must be modified more or less in specific instances. Moreover, each product must be studied in the light of all the knowledge which can be obtained as to its probable composition, and in many cases special methods or combinations of methods will be found necessary.

BIBLIOGRAPHY.

1. U. S. Dept. Agr., *Bur. Chem. Bull.* 152, 205, 1912.
2. *Ibid.*, 107, rev., 1912; 40 (*c*), 41 (*c*) and 241 (*d*, 1 and 2).
3. *Compt. rend.*, 148, 570, 1909.
4. *Jour. Assoc. of Off. Agr. Chem.*, 2, 236, method 1.
5. U. S. Dept. Agr., *Bur. Chem. Bull.* 107, rev., 100, 1912.

6. Emery, W. O., "Separation of Caffein, Acetanilid, and Sodium Bicarbonate," U. S. Dept. Agr., *Bur. Chem. Bull.* 122, 100, 1908; —— "Analysis of Headache Powders," *Ibid.*, 132, 196, 1910; —— "Methods for Analyzing Liquid Headache Mixtures," *Ibid.*, 152, 236, 1911; —— "Report on Headache Mixtures (Caffeine and Acetphenetidin; codeine, acetanilid and sodium salicylate; antipyrin, acetphenetidin and codeine sulphite; caffeine, acetanilid, quinine and morphine), *Ibid.*, 162, 193–201, 1912; —— "Estimation of Acetanilid and Phenacetin in Admixture," *Jour. Ind. Eng. Chem.*, 6, 665, 1914; —— and Palkin, S., "Estimation of Caffeine and Antipyrin in Admixture," *Ibid.*, 7, 519, 1915; —— "Estimation of Antipyrin," *Ibid.*, 6, 751, 1914; Emery, W. O., Spencer, G. C., and LeFebvre, C. C., "Estimation of Phenacetin and Salol in Admixture," *Ibid.*, 7, 681, 1915; Emery, W. O., "Report on Method of Estimation of Hexamethylenamine," Assoc. Off. Agr. Chem. (unpublished).

7. "Identification of Emodin-Bearing Drugs," *Jour. Ind. Eng. Chem.*, 9, 518, 1916.

8. "Group Methods for the Detection of Gelatinizing Agents, Pasty Material and Thickeners Used in Food Products," *Ibid.*, 7, 606, 1915.

9. U. S. Dept. Agr., *Bur. Chem. Bull.* 107, rev., 199, 1912.

10. United States Pharmacopoeia, 9th ed., 584.

11. U. S. Dept. Agr., *Bur. Chem. Cir.* 102, 1912.

12. *School of Mines Quarterly*, **30**, 139.

13. "The Volatile Oils," 2nd ed., translated by Edward Kremers, London, 1913.

14. Kebler, L. F., "The Tablet Industry—Its Evolution and Present Status—The Composition of Tablets and Methods of Analysis," JOUR. A. PH. A., June, July, August 1914.

DRUG DIVISION, BUREAU OF CHEMISTRY,
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

DETERMINATION OF ALCOHOL AND WATER IN OFFICIAL ETHER.

BY A. B. LYONS.

A timely article by R. L. Perkins appeared in the May issue of the *Journal of Industrial and Engineering Chemistry* on the determination by specific gravity of the percent by volume of alcohol and water in official ether. The specific gravity (apparent) of the ether at $\frac{25^\circ}{25^\circ}$ is taken, also that of the same ether after dehydration by potassium carbonate. From these data, by aid of charts plotted from data obtained through accurate determinations of the specific gravity of a sufficient number of mixtures of ether, alcohol and water in known proportions, the percentages of alcohol and of water in any given sample are readily deduced.

Examination of the plotted "curves" shows that these for practical purposes may be considered to be straight lines so that, within the narrow range covered by the charts, a certain difference in specific gravity corresponds with a practically uniform difference in percentage of water or of alcohol, as the case may be—the two factors naturally being quite distinct. It is therefore possible to deduce simple formulas by which the proportions respectively of alcohol and of water in a given sample of ether may be deduced from the observed specific gravities of the sample before and after dehydration.

I have not gone into the question of the standard temperature assumed for the measurement of the respective fluids—a matter of some importance since these differ greatly in their coefficients of expansion. Neither have I considered the question of condensation of volume in the mixing of the fluids, which, of course, has its effect on the volume percentage of the several fluids. I have simply used the data as offered in Mr. Perkins' paper and embodied in his charts. From these I have deduced the following mathematical formulas which will give percentages sufficiently exact for all practical purposes.

The specific gravity of the sample is to be taken accurately at $\frac{25^\circ}{25^\circ}$ C., also the specific gravity after dehydration with dried potassium carbonate.

Let Dif. stand for the difference between these and Dif.′ for the difference between the specific gravity of the dehydrated sample and that of absolute ether, *viz.*, 0.70968. Then:

Dif. × 895 = Volume percent of alcohol.

Dif.′ × 185.5 = Volume percent of water.

Incidentally I have made comparison of Mr. Perkins' figures for sp. gr. of mixtures of ether and alcohol with those given by Dr. Squibb (*Ephemeris*, p. 598).

Dr. Squibb gives his specific gravities on the basis $\frac{25^\circ}{4^\circ}$ C., and his mixtures contained a small (known) quantity of water. Making due allowance for the water and bringing the data to the basis of $\frac{25^\circ}{25^\circ}$, the figures are approximately:

SPECIFIC GRAVITY OF MIXTURES OF "ABSOLUTE" ALCOHOL WITH "ABSOLUTE" ETHER.

Vol. percent. Ether.	According to Perkins.	According to Squibb.
100	0.70968	0.70958
99	0.71089	0.71079
98	0.71198	0.71199
97	0.71312	0.71317
96	0.71415	0.71432

Analysis of the figures shows that there is a distinct condensation of volume when ether is mixed with alcohol, amounting to about 0.060 volume percent for 1 percent of alcohol. Condensation between water and ether is greater, being something like 0.34 percent for 1 percent of water.

The requirements of pharmacy, however, do not demand a high degree of exactness in determinations of the small proportions of alcohol and of water contained in official ether. I believe that the formulas I have given will be found to give results practically correct within the limits of experimental error.

NOT NEW BUT WORTH KNOWING.

Every one who has used Fehling's solution for quantitative determinations knows the practical difficulty of fixing the end point of the titration. An expedient which overcomes the difficulty was taught me when I was a student, by whom devised I do not know, but it certainly works like magic.

All that is necessary is to add to the solution prepared in the usual manner for titration 0.5 to 1.0 gramme of calcium carbonate. In presence of this, the cuprous oxide formed separates from the solution promptly as it is formed so that the supernatant fluid becomes quickly clear and transparent after each successive addition of the reagent. The titration is thus concluded in a very short time, the end point (disappearance of the blue color) being certain and sharp.

The test should always be made in a flask rather than in an open dish, and should be concluded as rapidly as possible to avoid reabsorption of oxygen from the air. For exact results, it is well to make a preliminary titration to determine approximately the quantity of reagent that will effect reduction of the sugar; then in a second experiment, add rapidly nearly all of the reagent that will be required, finishing the titration then with as little delay as possible.

SUGGESTED FORMULAS FOR PARAFFIN FILMS.*

BY TORALD SOLLMANN, M.D.

The popular propaganda for "Ambrine" has brought the subject of paraffin-film treatment of burns into prominence. The results are said to be better than are obtained by other methods of treatment; however, neither "Ambrine" nor any other preparation could accomplish "miracles." The principle of the method is supposed to be mainly if not solely mechanical; the film of paraffin, being impervious, forms a protection to the exposed tissues. On the other hand, it can readily be removed when desired. Perhaps the paraffin also forms a sort of scaffolding for the feeble granulations.

The method at least deserves scientific investigation. Such investigation, however, is hampered by the optimism which has developed in the minds of even medical men, regarding the efficacy of this treatment, resulting from the sensational accounts of the use of the secret French preparation, "Ambrine," in the present war. Another serious obstacle is the secrecy of the preparation so exploited, since it complicates any attempt at improvement. If the principle of paraffin films is a useful one, it is open to question that "Ambrine" is the *ne plus ultra* of these films. It is one of the disadvantages of the secrecy that we do not know what attempts have been made to secure the best possible preparation; and in the absence of this knowledge, it is reasonable to suppose that the preparation is capable of modifications which might be improvements. Perhaps extensive investigations have already been made in this direction; but of this we know nothing. If they have been made, we do not know whether or not all the possible lines of modification were taken into account.

The subject was brought to my attention by Dr. George W. Crile, and after weighing the foregoing considerations, it has seemed to me worth while to devise a series of paraffin combinations, so that the advantages of the various types of films could be tried out fairly. Since I started on this investigation, two Ameri-

---

Editor's Note—In an article by P. N. Leech, Ph.D., in the *Journal of the American Medical Association*, May 19, 1917, p. 1497, *et seq.*, the following formula for a paraffin film is given: Paraffin (M. P. by U. S. P. method 47.2° C.), 97.5 Gm.; asphalt varnish, 3 to 5 drops; olive oil, 1.5 Cc. The paraffin described in the U. S. P. does not seem to answer the purpose as well as paraffins ranging in melting points about 47° C.; that used by Dr. Leech was from the Standard Oil Co., melting point given by producers at 120–122° F. The asphalt varnish was obtained from Remien and Kuhnert Co., Chicago.

The method of preparation is described: "About 10 Cc. of asphalt varnish (B. Asphaltum) is placed in a beaker and heated on a steam bath for one-half hour. From 3 to 5 drops, delivered from a 1 Cc. pipette, are then placed in a casserole, and 1.5 Cc. of olive oil added. The mixture is heated and stirred for a few minutes until perfect solution is effected. To this is then added, with stirring, the paraffin, which has been previously melted. When the preparation is cooled, a brown solid is obtained. The physical factors of this paraffin mixture are: melting point 45.4 C. (U. S. P. method); plasticity, 28.5; ductility, 29; it is very pliable and strong at 38° C., and adheres exceedingly well to the skin, although it detaches easily."

Some manufacturers of these preparations add eucalyptol and also coloring matter, alkannin and gentian violet.

* From the Pharmacological Laboratory, Western Reserve University, School of Medicine, reprinted from *Journal A. M. A.*

Investigation supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

can preparations have been placed on the market. Both have followed the French example of keeping the composition secret, and both therefore are open to the foregoing objections. The secrecy makes a systematic comparison of the different films difficult. However, I have compared the physical properties of these commercial preparations with the formulas which I have given herein. Since experimentation with preparations of unknown composition cannot add much of permanent value to our knowledge, and is apt to be largely wasted, it seems worth while to publish the formulas and properties of our preparations without awaiting their clinical trial. Indeed, the very object of this publication is that they may receive such clinical trial.

In planning the formulas for these waxes, I intentionally avoided a slavish imitation of the pretended composition of the proprietary preparations. On the contrary, I have aimed to make the formulas simple, each containing at most two constituents; to make the manipulations so simple that the preparations could be made independently, and if possible extemporaneously, by any pharmacist, and would thus be accessible to any surgeon who cared to try them; to vary these formulas so as to produce preparations with properties which differ considerably, and to devise simple methods for comparing the relevant physical properties. I have intentionally refrained from adding any deodorant, antiseptic, coloring matter, etc. I believe that the first step should be to determine the suitability of these films from a purely mechanical standpoint. After the suitable type or types have been selected, it will be an easy matter to modify them by such additions.

The significant properties of the films appear to concern in the first place the melting point. This should be not much lower than 48° C., and not much higher than 53° C. Within this range, I incline to believe that the melting point is practically immaterial.

The hardness of the wax may be important. The harder the wax, the more firm is the support which it affords; but, on the other hand, the softer films are probably more "soothing." It is quite possible that different cases may demand different types of films in this respect.

A further important property is the strength of the film (fragility). It involves at least two factors: (1) ductility, the coherence of the film against pulling and kneading—a property which reflects the resistance of a film against stretching; and (2) pliability, the resistance to fracture on bending.

The first of these (the resistance to pull) can be determined only roughly by comparing methods; there is no convenient quantitative measure of this, although one could perhaps be devised. The resistance to breaking can be determined quantitatively in relation to the temperature: the more fragile films will break on bending at a relatively high temperature, while the more plastic films can be bent at relatively low temperatures.[1]

General Methods of Preparation.—The mixtures were prepared simply by melting the ingredients in a water-bath, after which the mixture was heated to 145° C. for sterilization.

Melting Point Determination.—This was attempted by the U. S. P. method, which consists in drawing the melted wax into a capillary tube; cooling for a cer-

[1] Further experience indicates that ductility may be expressed quantitatively by the temperature at which a thin film breaks sharply when pulled in a straight line.

tain period; attaching the tube to a thermometer; immersing in a water-bath, and heating slowly until the melted wax begins to rise in the capillary tube.

The last clause of this method was not found very satisfactory with the more viscid fats: the slow heating gave a variable melting point usually several degrees higher than that obtained by immersing the capillary directly into the bath, which had previously been heated to the required temperature. The explanation probably lies in the viscidity of the oil when the column in the capillary tube is heated throughout, as it must be when the heat is raised gradually. Evidently the lowest melting point must be the correct one, so that our modification appears fully justified.

Determination of Hardness.—This was determined at 22° C. by trying the cakes of the preparations on each other, seeing which would indent the other. Since absolute accuracy was not necessary, the preparations were made into a limited number of groups, designated by Roman numerals, according to their hardness.

Formation of Membranes.—It was aimed to produce films under conditions which would approach physically those of clinical use. For this purpose, the preparations were melted on a water-bath. A sheet of plate glass was meanwhile warmed to from 38 to 40° C. by immersion in a water-bath kept at this temperature. When the paraffin was melted, the plate was taken from the bath and the melted wax poured on the moist plate glass and spread with a hot spatula. The plate with the film was then immediately immersed in the 38 to 40° C. water, kept there for a few minutes, and then lifted off with a spatula. This detachment of the film furnishes a preliminary idea of its general properties.

Further experience indicates that the method of preparing these films does not affect materially their significant behavior to temperature limits. Any method that yields fairly thin films may therefore be employed. At present, I make the films by pouring a teaspoonful of the melted wax on the surface of water at about 40° C.

Determination of Strength of Film.—The films were placed in a bath at 38° C. and then gently manipulated by kneading and pulling, noting their coherence, thinness of membranes that could be formed from them; the ease with which they are torn on pulling, etc.

Determination of Breaking Temperature.—The films were immersed in a bath of a given temperature for a few minutes and then bent on themselves. At the lower temperature, this causes the film to break sharply at the crease. At the higher temperatures, the films can be doubled without breaking.

The temperature at which breaking just occurs varies for each wax, and appears to be an objective and very useful index of its fragility. Since great accuracy was not necessary, the temperatures were determined only approximately, and at intervals of 5 degrees. In the table, the lower temperature is that at which the film breaks; the upper temperature that at which it can be bent without breaking.

Determination of Ductility Temperature.—The films are placed in warm water and pulled. The water is gradually cooled, noting the temperature when the film breaks with a straight fracture, without stretching.

PREPARATIONS AND THEIR PROPERTIES

Formula No.	Composition			Melting Point (C.)	Degree[1] of Hardness at 22° C.	Fragility Temp. (Break on Bending) (C.)	A. Formation of Membrane B. Strength of Film at 38° C.; (Break on Kneading and Pulling)
0 =	"Ambrine"			51	III	18–24	A. Coherent; detaches easily; fairly soft B. Very good resistance and pulls very thin; still ductile at 33°
00 =	Petrolatum (yellow)			50.5	0	.....	
000 =	Paraffin (stock)			53	...	.....	
1 =	Paraffin Petrolatum	000 00	100 20	52	II	30–35	A. Greasy, crumbly and weak, but detaches easily and sufficiently intact B. Poor resistance, though better than 2
2 =	Paraffin Petrolatum	000	100 100	49.5	I	35–35	A. Weak, greasy, noncoherent; difficult to detach; unworkable B. Very weak; crumbles
3 =	Paraffin Petrolatum	000 00	100 300				A. Ointment consistency at 43° C.; too soft to use
4 =	Paraffin[2] Venice turpentine		110 22	52.5	II	35–35	A. Detaches well but soft and crumbly; slightly greasy B. Soft and crumbly
5 =	Paraffin[3] Petrolatum		110 11	52.5	III	35–37	A. Rather weak, although sufficiently coherent to form a film B. Soft and crumbly; very weak
6 =	Paraffin[3] Japan wax		110 22	52	IV	35–35	A. Hard but crumbly; not sufficiently coherent B. Very crumbly (practically like 5)
7 =	Japan wax			50	IV	37–?	A. Does not solidify promptly when undercooled; does not detach except by scraping B. Hard, brittle and crumbly; sets very slowly
8 =	Paraffin[3] Olive oil		110 11	53	III	35–35	A. About like 11 B. Greasy and quite crumbly; very weak
9 =	Paraffin[3] Castor oil		110 5	53.5	IV	30–35	A. Solid, but not very strong, and rather crumbly B. Quite brittle and crumbly; soft
10 =	Paraffin[3] Yellow beeswax		110 11	52.7	IV	25–30	A. About like 11 B. Fairly strong; can be pulled very thin; somewhat more brittle than "Ambrine"
11 =	Paraffin[3] Spermaceti		110 11	53.5	III	25–30	A. Soft, but very coherent, and detaches well; *very* promising B. Good, about like "Ambrine"
12 =	Paraffin[3] Stearic acid		110 11	52.25	IV	25–30	A. About like 11 B. About like "Ambrine;" a little harder and probably a trifle more brittle
13 =	Paraffin[3] Cacao butter		110 11	53	III	35–37	A. Soft, but detaches well; very promising B. Soft and breaks
14 =	Paraffin[3] Cacao butter		110 22	52	III	35–37	A. Not greasy, but soft and crumbly, and not sufficiently coherent B. Soft and fragile
15[2] =	Paraffin[3] Resina		110 11	53.5	V	30–30	A. Very slightly greasy; detaches and coheres; but not quite as good as 16 B. Like "Ambrine," or stronger
16 =	Paraffin[3]			52	IV	30–30	A. Detaches beautifully; very promising B. Rather more brittle than "Ambrine," but pulls out well; ductile at 36.5°; not at 33°

PREPARATIONS AND THEIR PROPERTIES (*Continued*)

17 = Paraffin, "embedding," M. P. 48° C.		48	III	25–30	A. Coherent and detaches quite well B. Practically like "Ambrine"
18 = Paraffin, "embedding," M. P. 52° C.		51.5	IV	24–25	A. Good film, but rather fragile B. About like "Ambrine," a little harder and more fragile and not quite as plastic
19 = Paraffin[3] Cera flava	110 22	53.75	IV	25–30	A. Strong and coherent film B. About like "Ambrine," slightly more brittle
20 = "Mulene"[4]		52	IV	16–18	A. Coherent but detaches with difficulty B. About like "Ambrine," slightly more brittle
21 = "Parresine"[4]		48	II	25–25	A. Soft, but coheres well B. About like "Ambrine," but slightly more fragile
22 = Yellow beeswax		(62 : 65 U. S. P.)	II	?–16	A. Dry, strong and coherent; not easily detached B. Fair resistance
23 = Paraffin[3] Liquid Paraffin	110 5	49.5	II	33–36	B. Just ductile at 36.5°; not at 33°
24 = Paraffin[3] Liquid Paraffin Beeswax	110 5 10	52	II	33–33	B. Just ductile at 36.5°; not at 33°
25 = Paraffin[3] Asphalt Varnish	110 11	48.5	II	25–28	A. Dry, very extensile, coherent, somewhat adhesive B. Just ductile at 28°
26 = Paraffin[3] Asphalt (Trinidad or Bermudez Asphalt Cement, 1 to 3%; or Texas Asphalt, 1%)	110 1 to 3	50.5–51	IV	27–29.5	A. Very pliable, somewhat adhesive B. Just ductile at 33–36°
27 = Paraffin[3] Texas Asphalt	110 5	51.5	IV	29.5–33	A. Pliable, but too adhesive B. Just ductile at 33–36°
28 = "Soft Paraffin"		50.5	III	26.5–28.5	A. Much more ductile than Formula 16 at body temperature B. Just ductile at 28.5°; not at 26.5°
Cacao butter		32.8	Not determined personally		
Stearic acid		56	Not determined personally		
Spermaceti		(42–50 U. S. P.) not determined personally			

[1] V is highest; zero lowest.
[2] Resin and Venice turpentine do not appear to mix well with paraffin, and must be kept stirred.
[3] The brand of paraffin used in these experiments was "Parawax," a trade name applied to paraffin marketed by The Standard Oil Co. of Indiana. It is a rather hard paraffin; softer varieties would be preferable. It should be remembered that the various oil refining companies have individual trade names of their own for their products.
[4] Preparations Nos. 20 and 21 are proprietary formulas.

The lower the temperature at which the film begins to break on bending or pulling, the greater is its pliability or ductility.

The individual preparations and their properties are shown sufficiently in the accompanying table. It is probable that clinical trials will introduce new factors so that the usefulness of the various preparations cannot be judged altogether from the physical results given in this paper.

(The cost of these preparations is low; paraffin, the principal ingredient, is at present about 15 cents per pound.)

For purposes of simplification the different preparations can be arranged into a number of groups. The most distinctive feature is the hardness, ranging from the stiff beeswax to the gelatinous petrolatum. It is this property, more than any other, which determines the mechanical usefulness of the individual preparations for special purposes. Aside from this, it is desirable that the preparation should have a low melting point, and that it should remain pliable at a relatively low temperature.

With these points in mind, the following grouping appears most promising; it is arranged in descending order of hardness, giving the number of the formulas under each class, in the order of preference:

Class I: Paraffin, Formulas 17, 18 and 16.

Class II: Paraffin-wax mixtures, Formulas 11, 12 10, 19, 15 and 6.

Class III: Paraffin-Asphaltum mixtures, Formulas 25 to 27.

Class IV: Paraffin-oil mixtures, Formulas 13, 23, 24, 8, 14, 9 and 4.

Class V: Paraffin-petrolatum mixtures, Formulas 5, 1, 2 and 3.

CLASS I.—*Simple Paraffins (17, 18, 16).*—These comprise the commercial paraffins of melting points of from 48 to 53° C. They are quite hard (generally IV of the scale), and break between 25 and 30° C. They would be used when a relatively stiff film is desired, which would separate clean from the wound. Their mechanical properties are quite similar to Ambrine. They are perhaps somewhat more fragile, but the difference does not seem important. They are the simplest and cheapest agents. Presumably any available "paraffin" could be used; but when a choice is possible, samples melting close to 50° C. would be preferred. It should be understood that commercial paraffins are complex mixtures of hydrocarbons and that the various commercial brands may differ in their physical properties, such as melting point, hardness and flexibility. It is doubtful, however, whether these differences are of practical importance in the clinical use.

CLASS II.—*Paraffin-Wax and Related Mixtures.*—The addition of small amounts of various waxes, etc., modifies the properties of paraffin somewhat; but the modifications are relatively slight, and I doubt whether they have any real importance. I tried mixtures with beeswax, 10 percent (Formula 10) and 20 percent (Formula 19); and with 10 percent of one of the following: spermaceti (Formula 11); stearic acid (Formula 12); and resin (Formula 15). Nos. 15 and 19 have rather high melting points. The others stand so close to the simple paraffin that I doubt the advisability of giving them an extended trial. If experimentation should appear desirable, I would advise Formula 11 (the spermaceti mixture); or if this is too expensive, Formula 12 (stearic acid mixture).

The *proprietary mixtures of secret composition* also belong in this general class:

"*Ambrine*" (Formula 0), as I have said, approaches very closely to the simple paraffins.[2] It is rather more plastic and less brittle; but the difference does not impress one as important.

"*Mulene*" (Formula 20) also comes very close to the simple paraffins, and to Ambrine. The same remarks apply to both.

"*Parresine*" (Formula 21) is a rather different article. It is softer and more fragile than Ambrine; but on the whole it does not depart seriously from the paraffin type.

CLASS III.—*Paraffin-Asphaltum Mixtures.*—These are distinctly more pliable and more adhesive than the plain paraffin, and can be made into thinner films. Theoretically, these properties would be advantageous; practically, I doubt whether the advantages are important. The paraffin and asphalt do not form perfect mixtures and must be kept stirred.

A mixture made with 10 percent of "asphalt varnish" possessed the desirable qualities, but since the composition of the asphalt furnished is complex and probably variable, no further experiments were made. Other preparations were made with the semi-solid asphalts, such as Trinidad or Bermudez "asphalt cement," from 1 to 3 percent; or Texas asphalt (Formula 26). These are not quite so plastic as the varnish formula, but nevertheless are quite promising. Higher proportions are less desirable, such as 5 percent of Texas asphalt in Formula 27.

CLASS IV.—*Paraffin-Oil Mixtures.*—These are considerably softer than the paraffins, and also considerably weaker (more friable); however, they are fairly coherent. They would perhaps be preferable in the early stages of treatment, since they would be somewhat emollient. The most promising is the mixture with 10 percent of oil of theobroma (cacao butter, Formula 13); then come the one with 5 percent of liquid petrolatum (Formula 23), and this with beeswax (Formula 24), and that with 10 percent of olive oil (Formula 8). That with 20 percent of cacao butter (Formula 14) is scarcely sufficiently coherent. That with 5 percent of castor oil (Formula 9) was unpromising. The mixture with 20 percent of Venice turpentine (Formula 4) had the properties of Class V, but appeared undesirable.

CLASS V.—*Paraffin-Petrolatum Mixtures.*—These differ materially from the other classes. They are very soft and might be termed "solid ointments." They are rather greasy, and crumble easily; No. 3 (75 percent petrolatum) was really a cerate and would not form a workable film. No. 2 (50 percent petrolatum) would also be practically unworkable. Twenty percent petrolatum (Formula 1) and 10 percent petrolatum (Formula 5) form weak, but manageable films. The last (Formula 5) would be worth trying when a very soft film is desired, for instance, on very sensitive surfaces.

Application to the Skin.—A selected series of preparations was applied to the skin in the same manner as they would be used clinically. A strip of skin about an inch wide was painted with the melted wax; on this was laid a very thin layer of cotton and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with a second preparation, and so on. (This will be a very suitable method of comparing the preparations clinically.) The strips are

[2] In a preliminary study of paraffin mixtures in the A. M. A. chemical laboratory, Ambrine was found to contain about 96 percent unsaponifiable matter (paraffin).—ED.

covered with a bandage and left on for at least an hour. The following presented no marked differences:

"Parawax" Paraffin	(16)	"Mulene"	(20)
Paraffin-spermaceti	(11)	"Parresine"	(21)
Paraffin-stearic acid	(12)	Paraffin-beeswax	(10)
Paraffin, 48°	(17)	Paraffin-resin	(15)
Paraffin-theobroma	(13)	Paraffin-liquid paraffin	(23)
"Ambrine"	(0)	Paraffin-beeswax-liquid paraffin	(24)
Paraffin-petrolatum	(5)	Paraffin-asphaltum mixtures	(25 and 26)

Paraffin-asphaltum gave a film that was somewhat adherent, but that was smooth, strong and so pliable that it could be wound about a pencil without cracking.

CONCLUSIONS.

The preparation and mechanical properties of a series of paraffin-film mixtures suggest that the most important mechanical property of such films from the therapeutic standpoint is their hardness. It is suggested that several degrees of hardness might possess advantages under different conditions.

Surgeons who desire to experiment with the paraffin treatment of burns are urged to use simple preparations of known composition, so that their results can be compared, and so that any deficiencies may be met, and improvement made intelligently.

The physical and mechanical properties of a series of paraffin and mixtures are described. *Ordinary paraffin*, melting between 48° and 53° C.(118–128° F.), preferably about 50° C. (122° F.), appears to possess practically the mechanical properties of the French preparation, and is urged as the standard of comparison.

Paraffin-Asphaltum (Formula 26) gives a preparation of superior pliability.

The following additional formulas are suggested for clinical trial as preparations of increasing softness:

Paraffin-Spermaceti (Formula 11): Paraffin, 10 parts; spermaceti, 1 part.

Paraffin-Theobroma (Formula 13): Paraffin 10 parts; theobroma oil, 1 part.

Paraffin-Petrolatum (Formula 5): Paraffin, 10 parts; yellow petrolatum, 1 part.

In comparing these films with each other, or with proprietary formulas, claimed points of superiority should be clearly established. Finally, experience may show it to be advantageous to add to the simple combinations I have suggested one or more medicinal agents such as resorcin, eucalyptus, scarlet red, etc.

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK.

A complete list of these Proposed Formulas since February 1912 was published in an index in the December 1916 number of the JOURNAL. The Committee will continue its work in monthly instalments in this Department of the JOURNAL. Members of the A. Ph. A. are earnestly requested to send suitable formulas and also criticisms of those published to the Chairman.

Otto Raubenheimer, Brooklyn, N. Y.

Soda Fountain Requisites—(*Continued from May issue*).

No. 534.

LEMON ICE CREAM.

Cream	3500 mils
Sugar	750 mils
Essential Tincture Lemon	16 mils
Gelatin	15 Gm.

No. 535.

ORANGE ICE CREAM.

Cream	3500 mils
Sugar	750 mils
Essential Tincture Orange	16 mils
Gelatin	15 Gm.

No. 536.

MARSHMALLOW ICE CREAM.

Cream	4000 mils
Marshmallows dissolved over hot water bath	1000 mils
Candied Cherries, cut fine	500 mils
Extract Vanillin	16 mils
Sugar	250 mils

No. 537.

BANANA ICE CREAM.

Cream	4000 mils
Sugar	1000 mils
Lemon Juice	60 mils
Gelatin	15 Gm.
Bananas	16

No. 538.

VANILLA ICE CREAM.

Cream	3750 mils
Sugar	750 mils
Extract Vanillin	90 mils
Gelatin	15 Gm.

No. 539.

STRAWBERRY ICE CREAM.

Cream	3500 mils
Sugar	750 mils
Strained Strawberry Juice	750 mils
Gelatin	15 Gm.

No. 540.

RASPBERRY ICE CREAM.

Cream	3000 mils
Sugar	750 mils
Gelatin	15 Gm.
Strained Raspberry Juice	750 mils

No. 541.

CARAMEL ICE CREAM.

Extract Vanillin	15 mils
Cream	3500 mils
Sugar	250 mils
Caramel Syrup	120 mils
Gelatin	15 Gm.

Contributed by
Clarissa M. Roehr, U. C. Hospital,
San Francisco.

No. 542.

GENERAL DISINFECTANT.

U. C. Hospital, San Francisco.

Cresol	50 mils
Soft Soap	45 Gm.
Alcohol, a sufficient quantity,	
To make	100 mils

No. 543.

BLACK INK.

U. C. Hospital, San Francisco.

Tannic Acid	3.34 Gm.
Gallic Acid	0.77 Gm.
Iron Sulphate	3.00 Gm.
Acacia	1.00 Gm.
Diluted Hydrochloric Acid	2.50 mils
Liquefied Phenol	0.10 mil
Distilled Water, a sufficient quantity,	
To make	100 mils

If an immediate black color is desired, then add a small amount of Nigrosine.

No. 544.

PASTA BOECK.

Boeck's Paste.

U. C. Hospital, San Francisco.

Solution Lead Subacetate	2 mils
Coal-Tar Solution N. F. IV	15 mils
Starch	20 Gm.
Purified Talc	20 Gm.
Glycerin	10 mils
Acacia	0.5 Gm.
Distilled Water, a sufficient quantity,	
To make	100 Gm.

Used in our Dermatological Department in skin diseases.

No. 545.

UNGUENTUM CERUSSAE COMPOSITUM.

Compound White Lead Ointment.

U. C. Hospital, San Francisco.

Red Oxide of Mercury	
Camphor, of each	6 Gm.
Lead Carbonate	12 Gm.
Petrolatum	
Hydrous Wool Fat, of each	38 Gm.

Used in our Dermatological Department. Excellent in skin eruptions.

No. 546.

PASTA ZINCI LASSAR.

Pasta Zinci D.-A. B. V.

Lassar's Plain Zinc Paste.

U. C. Hospital, San Francisco.

Zinc Oxide	
Starch, of each	25 Gm.
Petrolatum	50 Gm.

There is some confusion regarding the formula of Lassar's Paste. Miss Roehr very correctly points out that this means the formula *without* Salicylic Acid, and states: "I have never seen this mentioned, but perhaps others use it that may also." Miss Roehr is right, as the original Lassar's Paste did not contain Salicylic Acid. The latter was added as an improvement. In some pharmacopoeias, f. i., Deutsche Arzneibuch, both are official, namely Pasta Zinci and Pasta Zinci Salicylata. At the same time the Chairman begs to point out that at his recommendation the White Petrolatum in the N. F. III formula was properly changed to Yellow Petrolatum in N. F. IV, as this is the ingredient in Lassar's original formula.

No. 547.

LOTIO CALAMINAE COMPOSITA.

Compound Calamine Lotion.

U. C. Hospital, San Francisco.

Calamine	6 Gm.
Zinc Oxide	6 Gm.
Glycerin	6 mils
Distilled Water, a sufficient quantity,	
To make	100 mils

No. 548.

LUBRICANT.

U. C. Hospital, San Francisco.

Starch	6 Gm.
Boric Acid	3 Gm.
Glycerin	25 mils
Distilled Water	25 mils

Triturate starch and boric acid with little water and add glycerin and the balance of the water. Boil during one or two minutes.

Contributed by Wm. Gray,
Presbyterian Hospital, Chicago.

No. 549.

CREAM BASE.

Boric Acid	15 Gm.
Zinc Oxide	
Bismuth Subnitrate	
Starch, of each	10 Gm.
Anhydrous Wool Fat	30 Gm.
Olive Oil	10 mils
Lime Water	30 mils
Rose Water	15 mils

Triturate the powders with the anhydrous wool fat until well incorporated. Then add the mixture of olive oil and lime water and last the rose water.

An excellent creamy base or vehicle for other medicaments.

No. 550.

UNGUENTUM HYDRARGYRI IODIDI RUBRI.

Ointment of Red Mercuric Iodide.

Ointment of Mercury Biniodide.

Red Mercuric Iodide	0.33 Gm.
Olive Oil	4 mils
Hydrous Wool Fat, a sufficient quantity,	
To make	30 Gm.

Very beneficial in the treatment of goitre.

Contributed by the Chairman.

No. 551.

UNGUENTUM ROSANILINI.

Fuchsine Ointment.

Skin and Cancer Hospital, N. Y.

Gruebler's Basic Fuchsine	1 to 2 Gm.
Phenol	2 Gm.
Petrolatum, a sufficient quantity,	
To make	100 Gm.

This preparation is far superior to Scarlet Red Ointment for stimulating granulation in chronic ulcers.

It is very important to use the *basic* fuchsine, a bacteria stain, manufactured by Dr. G. Gruebler & Co., Leipzig and not the *acid* fuchsine or Magenta or Rosaniline Hydrochloride, which is very irritating. See also U. S. P. IX, p. 533.

No. 552.

PASTA HAMAMELIDIS.

Hamamelis Paste.

Witch Hazel Snow or Foam.

B. P. Cx.

Stearic Acid	10 Gm.
Monohydrated Sodium Carbonate	0.75 Gm.
Glycerin	1.5 Gm.
Witch Hazel Water	50 Gm.
Distilled Water, a sufficient quantity,	
To make	100 Gm.

Melt the stearic acid on a water-bath, add the sodium carbonate dissolved in the glycerin and 5 mils of hot water. Continue the application of heat for an hour, with constant stirring; then remove from the source of heat, make up the weight to 50 Gm. with distilled water and then add 50 Gm. of hamamelis water. Heat the mixture for about a minute, stir until smooth, transfer to a warm mortar and beat to a foam. Keep in well closed containers, or the cream will become dry.

This preparation is an excellent toilet application for the skin.

No. 553.

SYRUPUS SENNAE ET MANNAE.

Syrup of Senna and Manna.

Syrup of Senna, U. S. P.
Syrup of Manna, N. F., equal volumes.

No. 554.

UNGUENTUM HYDRARGYRI CHLORIDI MITE.

Unguentum Calomelanos.

Calomel Ointment.

Pommade de Calomel.

Codex.

Calomel	10 Gm.
White Petrolatum	90 Gm.

No. 555.

BROMO-CHLORALUM.

(Remington.)

Aluminum Chloride	30 Gm.
Aluminum Bromide	15 Gm.
Boiling Water	250 mils

Dissolve on a water-bath. When cool, filter through paper.

No. 556.

CREAM OF CAMPHOR.

Camphor-Cream.

(Remington.)

Castile Soap, dry and granulated	8 Gm.
Ammonium Carbonate	8 Gm.
Powdered Camphor	8 Gm.
Oil of Thyme	4 mils
Oil of Turpentine	8 mils
Tincture of Opium	8 mils
Water, a sufficient quantity,	
To make	500 mils

Dissolve the soap and ammonium carbonate in about 300 mils of hot water. Dissolve the camphor in the oils and add to the soap solution. Then add the tincture and sufficient water to make 500 mils.

A very soothing and healing lotion. The tincture of opium may be omitted.

No. 557.

WRIGHT'S SOLUTION.

Arsenic Trioxide	5.5 Gm.
Potassium Carbonate	5.5 Gm.
Bromine	15.5 Gm.
Gold, in leaf	1.8 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Boil the arsenic trioxide and potassium carbonate with 250 mils of distilled water in a flask until solution has been effected. Place gold leaf in a bottle, add 600 mils of distilled water and then carefully add the bromine and

shake until a solution is affected. Then add the first solution, mix well, and then transfer to a flask or retort and boil until bromine fumes are no longer evolved. When cool, transfer to a graduated vessel and add distilled water to make 1000 mils. Filter, if necessary.

No. 558.

ROTULAE MENTHAE PIPERITAE.

Peppermint Disks.
Pfefferminzplaetzchen.
D. A.-B. IV.

Oil of Peppermint	1 mil
Alcohol	2 mils
Sugar Drops or Disks	200 Gm.

Dissolve oil in alcohol and rotate this solution in a capacious bottle. Add the sugar disks and gently rotate so that they absorb the oily solution.

These Peppermint Disks are much stronger and have more medicinal properties than the numerous "Peppermints" which flood the market.

No. 559.

ELIXIR ANTIASTHMATICUS, HARE.

Dr. Hare's Asthma Elixir.

Sodium Bromide	
Sodium Iodide, of each	1 Gm.
Fluidext. Pilulifera, N. F.	1.5 mils
Tincture Lobelia, U. S. P. VII	2 mils
Spirit Nitroglycerin	0.25 mil
Aromatic Elixir, a sufficient quantity,	
To make	30 mils

A favorite remedy of the late Prof. Hare, of Philadelphia, for asthma. Used largely in some sections of the United States. In place of 2 mils of the old 15 percent Tinct. Lobelia U. S. P. VII, 3 mils of the 10 percent tincture U. S. P. IX can be used.

No. 560.

PULVIS LOBELIAE COMPOSITUS.

Compound Lobelia Powder.
Asthma Powder.
B. P. Cx.

Powdered Lobelia	
Powdered Stramonium Leaves	
Powdered Tea Leaves	
Powdered Potassium Nitrate, of each	25 Gm.
Oil of Anise	0.1 mil

Mix well.

No. 561.

ANTIASTHMATIC ELIXIR.

Improved.

The addition of Fluidextract Glycyrrhiza 0.6 mil to the above, greatly improves the taste of the elixir.

No. 562.

PULVIS ANTIASTHMATICUS.

Asthma Powder.
Himrod's Style.

Lobelia	
Stramonium Leaves	
Black Tea Leaves	
Potassium Nitrate, equal parts	

The drugs, in coarse or fine powder, are thoroughly mixed.

Asthma Powders are used by burning about one-half to one teaspoonful and inhaling the fumes. Relief is thereby quickly obtained.

No. 563.

PULVIS LOBELIAE COMPOSITUS.

Sir Morell Mackenzie.

Powdered Lobelia	
Powdered Stramonium Leaves	
Powdered Tea Leaves	
Powdered Potassium Nitrate, of each	60 Gm.
Powdered Anise	
Powdered Fennel, of each	8 Gm.

The late Prof. M. Mackenzie, the eminent throat specialist, claims that the addition of the last 2 ingredients produces a superior Asthma Powder.

No. 564.

PULVIS STRAMONII COMPOSITUS.

Compound Strammonium Powder.
Sir James Sawyer's Asthma Powder.
B. P. Cx.

Stramonium Leaves	50 Gm.
Anise	12 Gm.
Lobelia	6 Gm.
Tea Leaves	6 Gm.
Oil of Eucalyptus	1 mil
Potassium Nitrate	26 Gm.

Mix the oil with the vegetable powders, then add the powdered saltpeter.

About half a teaspoonful of this powder is pressed by the fingers into the shape of a cone, which is then lighted at the top. The patient inhales the fumes as the powder burns. This powder is used several times daily, as may be necessary for asthma.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The Baltimore Branch of the American Pharmaceutical Association met on Wednesday, May 16th, in Harris Hall, of the University of Maryland. The reading of the minutes of the previous meeting was omitted.

Dr. Engelhardt submitted a report on the Proceedings of the A. Ph. A., which was received and ordered to be filed.

Letters from the Columbus, the New York, and the Washington Branches, in which were embodied resolutions in regard to the annual dues and the publications of the American Pharmaceutical Association, were read by the Secretary. After a general discussion, a motion was made and duly seconded that the Baltimore Branch of the American Pharmaceutical Association go on record as being opposed to any increase in dues; and that a committee of three be appointed, with power to act during the Summer when there would be no monthly meetings, to consider the publications of the Association, the member of the Council from the Baltimore Branch to be an *ex-officio* member of the committee. President McKinney appointed Dr. E. F. Kelly, W. J. Lowry, Jr., and B. Olive Cole as the other members of the committee.

A very interesting paper in regard to "Aconite and Aconite Preparations" by Dr. H. Engelhardt, was then presented. In this paper it is shown that the assay processes for fluidextract of aconite and powdered extract of aconite give results that are far from being satisfactory; that no concordant results can be obtained when cochineal is used as indicator when assays are made on the same sample by different operators; that the results obtained with methyl red as indicator are more concordant and satisfactory but that they are considerably lower than those obtained with cochineal; that therefore cochineal cannot indiscriminately be replaced with methyl red. This discrepancy seems to be due to the fact that the alkaloidal residue obtained in the assay process consists of various bases which act differently on the two indicators, because no difference in the results was found when pure aconitine was titrated either in the presence of methyl red or cochineal as indicators.

For the assay of the powdered extract four different methods were applied, the U. S. P. IX method, the U. S. P. VIII method and U. S. P. IX method for the fluidextract adapted for powdered extract, and a direct shaking-out method. The results were not at all satisfactory. The same was the case with the assay of the fluidextract to which the U. S. P. VIII, U. S. P. IX methods and the direct shaking out method were applied. Some of the results obtained were absolutely worthless.

The results of a great number of physiological experiments were given and it is pointed out that when taking the lethal dose for crystallized aconitine as 0.00000005 per gramme guinea pig, the alkaloidal residues can contain only 25 per cent of the crystallized alkaloid when calculated from the requirements of the U. S. P.

The physiological experiments further show that powdered extract of aconite is almost worthless and that the fluidextract deteriorates very rapidly.

It is strongly urged in the paper that the assay process for both the powdered extract and fluidextract of aconite be revised and that some further work be done in regard to the present assay methods.

The entire paper, together with some supplementary experiments will be published at some future time in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

A general discussion of the paper followed, after which a vote of thanks was tendered Dr. Engelhardt for his very worthy contribution and the meeting was adjourned.

B. OLIVE COLE, *Secretary-Treasurer.*

CINCINNATI.

At the May meeting of the Cincinnati Branch of the American Pharmaceutical Association, after disposing of the routine business of the Association, President Dr. J. C. Otis presented his annual address, in which he thanked the officers and members for the uniform courtesy and generous support given him during his incumbency in office and also bespeaking for his successor, Mr. Louis Werner, the same hearty support and encouragement. He advocates more energetic measures to be employed by the Membership Committee, but also realizes that, owing to the unsettled economic and political conditions, as well as the exacting nature of the drug business, the much desired increased membership is difficult to attain. He approves of the efforts of the officers and committees to present instructive lectures and discussions before this Branch, which cannot fail to be of material value to our members, and hopes that the coming session will be even more productive of instructive and practical topics than the one just passed. A copy of this address forms a part of this record.

Frank H. Freericks, chairman of the Committee on Legislation, in making his annual report, stated that a number of legislative changes and enactments were sought by pharmacists in Ohio during the last session of the Legislature, all of which were intended to place pharmacy on a higher plane and to secure for the pharmacist what really belongs to him. One good result secured was an amendment of the law, under which the enforcement of the so-called Pharmacy Laws was again placed with the Board of Pharmacy instead of the Board of Agriculture. A change was also secured in the matter of authorizing the Board of Pharmacy to subpoena witnesses, and in the method of finally suspending or revoking certificates, such final jurisdiction having been placed properly with the Court, instead of leaving the decision with the Governor and Attorney General, to whom such power could not be constitutionally given.

Under the auspices of the Ohio State Association, a strong effort was made for proper amendment of the Poison Law and restricting the handling of potent drugs and for restricting the sale of drugs generally to qualified people, and an amendment to the Narcotic Law was also sought. This proposed legislation largely failed because of the determined opposition of those having special interests, including grocers, country merchants, proprietary medicine manufacturers and doctors. Without exception the legislation proposed was intended for the public welfare quite as much, if not more, than for the interests of pharmacists. The proposed amendment was an adaptation of the N. A. R. D. model, while some of the other proposed changes were to an extent based upon the intended A. Ph. A. Modern Pharmacy Law.

The opposition to everything which retail pharmacists desire and believe themselves entitled to, by special interests, which are concerned in one manner or another, makes it plain that either by conference with such special interests a satisfactory compromise must be secured, or, that otherwise pharmacists of this state and other states must increase their united activity to a point where they can secure what they and the public ought to have even as against the opposition of special interests.

In these very grave days it seems a word regarding the recognition of pharmacy by our national government would not be amiss. The present governmental machinery, because of the war, includes a Council of National Defense. That Council seems to be made up of men who are qualified along different lines to give advice of value to the proper authorities. It has evidently been the intent to include representatives of every activity which is vitally concerned with the needs of the Army and Navy, but it is noteworthy that no one seems to have thought of the need for having such Council include a representative who knows about pharmacy and about drugs, other than possibly as an incident to some distinct calling or profession.

In view of the above, the following resolutions were adopted by the Cincinnati Branch, copies of which were forwarded to the President of the United States, the two Senators from Ohio and the two Congressmen from the First and Second Districts. These resolutions were introduced by Hon. Frank H. Freericks and seconded by Dr. John Uri Lloyd.

"WHEREAS, The Government of the United States in the proper exercise of its functions, has found it necessary to create a National Council of Defense, constituted of the best qualified persons along the different lines of activity which concern and come in touch with the needs of the Army and the Navy, and,

"WHEREAS, The proper conservation, dis-

tribution, manufacture and supply of drugs and chemicals is in that connection of far-reaching importance, therefore be it

"*Resolved*, To be the opinion of the Cincinnati Branch of the A. Ph. A. that the National Council of Defense should properly include a representative of pharmacy, who is qualified to aid the government with advice and knowledge pertaining to the nation's drugs and chemicals; be it further

"*Resolved*, That a copy of these resolutions be sent to the President of the United States and to the two United States Senators from Ohio and to the Representatives in Congress from the First and Second Districts."

Treasurer Julius Greyer reported a cash balance in the treasury but deplored the fact that it had become necessary to drop from the list those names of members who have been in arrears with their dues, as well as those not eligible to membership in the local branch.

In view of the correspondence regarding the continuance or discontinuance of the Year Book from the Philadelphia, New York, Washington, D. C., Columbus and other branches, the Cincinnati Branch passed the following resolution:

"*Resolved*, That the Cincinnati Branch submits for consideration to the Council of the A. Ph. A. that in connection with meeting the expense of publishing the Year Book, they consider the feasibility of having voluntary contributions to defray such expenses, or otherwise publication on subscription."

The above resolution was introduced by Charles G. Merrell and seconded by F. H. Freericks.

The Secretary's annual report gives a complete résumé of the activities of this Branch during the session 1916–17. It forms part of this record.

At the installation of the newly elected officers, each one of these gentlemen pledged himself not alone to the progress and welfare of the local Branch but as well to the Parent Association.

CHARLES A. APMEYER, *Secretary.*

DETROIT.

Several questions of considerable importance to the druggists of the country were discussed at the May meeting of the Detroit Branch of the American Pharmaceutical Association. Among the subjects brought up were Compulsory Health Insurance, The Status of the Pharmacist in the European War, and the A. Ph. A. Year Book.

The following resolution concerning Compulsory Health Insurance was introduced and unanimously adopted:

The Detroit Branch of the American Pharmaceutical Association desires to express its disapproval of the compulsory health insurance bills introduced in the Michigan and other legislatures during the last few months. It may be that, in the interests of the wage earners of very limited income, something in the way of social insurance should be provided under the supervision of the State, but the present plan as worked out by the promoters of compulsory health insurance certainly goes much too far and is open to serious objection.

It would involve a tax burden that would be enormous. It would deal out charity so lavish as to pauperize and enervate the very people whom it is designed to assist. There is a grave question, too, as to whether the compulsory feature is wise or not, since it would compel two-thirds of the entire male population of the country to go into the plan whether they wanted to or not; and the element of un-American discrimination is seen in the fact that the remaining third of the male population would not only be left unprotected, but would have to contribute very largely toward the protection of the others.

At the present time the subject is being carefully studied by experts in various sections of the country, and when some more equitable and judicious plan is offered to the American people, we shall be glad to give it our approval and our support. In the meantime, however, we are unalterably opposed to the proposition for reasons so numerous that they could not well be stated in a resolution of this kind.

A resolution was also adopted to the effect that the Branch goes on record as favoring the discontinuance of the A. Ph. A. Year Book. This step was taken because it was felt that the Year Book is not appreciated by the members in general and that the matter now used in the Year Book could be incorporated to better advantage in the monthly JOURNAL of the Association.

As part of the regular program of the evening interesting talks were given by Carl M. Green and Walter W. Kennedy. Mr. Green, who is the head of the Carl M. Green Advertising

Agency, took for his subject, "Nationally Advertised Goods as a Means for Increasing Sales." Mr. Kennedy, Detroit representative of the Lungmotor, explained the use of the lungmotor in the treatment of asphyxiation and gave a demonstration of the way in which the device is of service in cases of apparent drowning.

Officers for the season of 1917–18 were elected as follows: *President*, Ernest Kimmich; *Vice-President*, F. T. Bradt; *Secretary*, Miss Mary Strawn; *Treasurer*, Charles F. Mann; *Chairman of the Program Committee*, E. R. Jones.

WALTER M. CHASE,
Chairman Program Committee.

NASHVILLE.

The regular monthly meeting of the Nashville Branch of the American Pharmaceutical Association was held in joint session with the Nashville Drug Club May 17, 1917, D. J. Kuhn, presiding.

The minutes of the preceding meeting were read and approved. D. S. Sanders, chairman of the Mail Order House Committee, reported progress and that arrangements had been made for this committee to meet with the Retail Merchants' Association in the near future. A number of letters were read from Tennessee Congressmen and Senators, endorsing the action taken by the Nashville Branch and pledging their support in the correction of the U. S. Patent Laws. Attention was called to the fact that several bills had already been introduced in Congress for temporarily correcting the existing laws. A letter on the subject was read from Dr. J. H. Beal. Dr. J. O. Burge emphasized the necessity of having the Patent Laws amended at the present time.

E. A. Gilliland, in speaking of prevalent drug prices, stated that the usual basis of calculation did not obtain now and the law of supply and demand does not control, as deliveries are uncertain and contracts cannot be made as formerly. It is largely a case of "take what you can get." He stated that the glass manufacturers were far behind in their contracts for bottles. Equally as bad or worse conditions exist with regard to tin cans; the Government having commandered tin plate for the manufacturers of containers for canned foods. On account of the requirements of the Government, the demand for drugs and chemicals is very large, he said, but the potash and dye situation is somewhat improved by recent developments. Mr. Gilliland predicted higher prices for drugs and chemicals than are required in munitions and for the Army and Navy. He referred to the impending war taxes that will affect alcohol, proprietaries, soda fountain beverages, tobacco, cigars, etc. He suggested that a thorough study be made of the situation and, as far as possible, the payment of these taxes be passed on to the consumers. Notwithstanding these conditions, the speaker predicted that business would continue good, as a result of the increased products of the mines and farms.

L. A. Jeancon, of Denver, Colo., being present, he was introduced to the members. He stated that recently a study of the cost of doing business had been promoted by the retail druggists of Denver in coöperation with the wholesalers. The druggists are constantly advised relative to price changes and an experienced drug man has been employed to visit the stores weekly to assist in communicating information along the lines of good business conduct and more particularly an understanding of the cost of doing business. A committee, consisting of J. B. Sand, E. J. Schott, C. W. Jennings, S. C. Davis, D. S. Sanders and D. J. Kuhn, was appointed to start a movement along similar lines in Nashville.

WILLIAM R. WHITE, *Secretary.*

NEW YORK.

The May meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Mayer, in the lecture hall of the New York College of Pharmacy, on Monday, the 14th, 1917, at 8.30 P.M.

Forty-eight members were present.

The minutes of the April meeting were read and approved.

The Treasurer's report was read and accepted.

The report of the Member of Council (Professor Hostmann) was read and ordered accepted.

Membership Committee.—In the absence of Chairman Walter, the Secretary presented 24 applications for membership in the parent association.

The Secretary was directed to follow the usual course with regard to these applications.

Legislation and Education.—Due to the absence of the Chairman, no report was rendered.

Fraternal Relations.—Chairman Diner reported that due to the more pressing ques-

tions brought up by the present condition of war, little could be done.

Progress of Pharmacy.—Chairman Diekman read a number of interesting abstracts on the following:

Effect of Fertilizers on Oranges.
Determination of Antipyrine.
Chlorine in Perfumery.
Potassium from Kelp.
Waterglass Paints.
Analysis of Milk Powder.
Alkalinity of Pure Cocoa Ash.
Separation of Mineral Matter in Rubber.
Natural and Synthetic Camphor: A Comparison of their Physiological Action.
Test for Vanillin.

Communications from Mr. Woodruff and from the Philadelphia Branch were read and ordered filed.

The death of Mr. Main was reported by Professor Arny, and the latter moved for the appointment of a committee to draw up suitable resolutions. The following committee was appointed for this purpose by President Mayer: Professor Arny, Charles Holzhauer, C. O. Bigelow.

Dr. Diner then read an interesting paper on "Diagnostical Tests of the U. S. P. IX," pointing out a few improvements which might be made.

Mr. Penick then read a paper on "The Crude Drugs of the U. S. P. IX, from the Drug Merchant's Point of View." The paper dealt chiefly with the commercial aspects of the crude drug situation of the present time.

Dr. Satterthwaite led the discussion by reading a paper on "Pharmacopoeias, Pharmacists and Physicians." Further discussion of the papers was carried on by Dr. Weinstein and Professor Raubenheimer.

The meeting was then adjourned.

HUGO H. SCHAEFER,
Secretary.

At the meeting of New York Branch A. Ph. A., held May 28th, Caswell A. Mayo presented the resolutions which follow. These were adopted and present a very important matter for consideration by pharmacists everywhere; unless they themselves call attention, lives of the sick may be imperilled and pharmacies will be seriously inconvenienced.

EXEMPTION FOR PHARMACISTS FROM DRAFT.

"WHEREAS, The welfare of the community demands and the laws provide that none but qualified pharmacists shall be permitted to prepare and dispense medicines; and

"WHEREAS, Many qualified pharmacists will be amenable to draft into the Army by conscription; and

"WHEREAS, In many cases such draft may leave the pharmacy without legally qualified men to prepare and dispense medicines, thereby imperiling the lives of the sick; therefore be it

"*Resolved*, By the New York Branch of the American Pharmaceutical Association, that the President of the United States is hereby requested to make provision for the exemption from service under the draft of one qualified pharmacist and of one qualified assistant pharmacist for each pharmacy in the United States, and in addition, one qualified pharmacist and one qualified assistant pharmacist for each fifty prescriptions, or part thereof, compounded daily in said pharmacy above the first fifty; and be it further

"*Resolved*, That copies of these resolutions be sent to the President of the American Pharmaceutical Association, to the members of the Council, to the presidents of the several branches, and to the members of the National Drug Trade Conference, with a request that they too ask for exemption of a sufficient number of pharmacists to protect the public welfare by maintaining a competent staff of qualified pharmacists and assistants in every pharmacy in the United States."

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch, A. Ph. A., was held Tuesday evening, May 8th, at the Philadelphia College of Pharmacy, with the President, Ambrose Hunsberger, in the chair. The evening was entirely dedicated to a consideration of the pharmacist's opportunities for aiding his country during the present period of stress. The regular order of the meeting was changed to accommodate the various speakers.

Major Frescoln, representing the Army Branch of the service, spoke enthusiastically of the opportunities which were offered to the pharmacist in that branch of the service, but despite the major's lucid and spiritful explanation of these so-called opportunities, the general concensus of opinion among the audience was that very little recognition is given the profession of pharmacy. The fact that the U. S. Army provides no commission for pharmacists, no matter how advanced they may be, and offers them practically nothing different from what it offers any laymen, was made clear by the major, who emphasized the fact

that the pharmacist entered the service as a private and could be promoted according to his talents receiving for his highest rating, Master Hospital Steward, a rating that can also be given to any layman enlisting in the Hospital Corps. The fact must be borne in mind, however, that the major obtained his facts, solely from the status of the Army on a peace footing. The new aspect will probably change things. A cautious listener could not help catching the inference in the major's talk that in truth there was no need for a trained pharmacist except at the base hospitals, since the field medicaments were few and conveniently packed and could be handled by any intelligent layman. Still the major insisted that a thorough knowledge of the metric system was essential and one knows few even "intelligent" laymen, who know anything about the metric system. The unmistakable but unmeant impression left by Major Frescoln's talk was that the pharmacist can undoubtedly be of extreme usefulness in the Army, *but* that the profession is needful of bringing this thought to the minds of the proper authorities. Mr. England, discussing the speaker's presentation, ably summed up the question, when he said, that "the doctor is given his commission and so is the dentist and veterinarian, but the pharmacist is offered no more than the ordinary layman, simply because the profession has been asleep at the switch."

Chief Pharmacist's Mate Cooley, representing the Naval Service, brought a more cheerful message, despite the fact that he spoke in the course of his interesting talk of the pharmacist occupying the rôle of "embalmer" on board ship. There is a great need of pharmacists in the Navy, according to the speaker, and the opportunity for promotion is excellent. As a matter of fact the chief pharmacist is a commissioned officer, a junior lieutenant. Much opportunity is given the pharmacist in the Navy to specialize along certain lines, such as chemistry, bacteriology, etc., and full compensation given for such extra services.

Everyone starts on an equal footing, but recognition of talent is said to be certain and swift. Indeed it was quite evident that the Navy offers something to the pharmacist greatly in excess of what the Army offers and it seems strange that such should be the case. England and the United States are far behind other countries (France, Germany, etc.), in the recognition which is given to the profession of pharmacy in either branch of the service.

Dr. Boston, representing the American Red Cross Society, then spoke briefly of the aims and ideals of the Society, and of the opportunities which the retail druggist had of furthering the work of that excellent association, by distributing its literature, displaying its posters and taking names of new members, etc.

The meeting was then switched to its regular schedule. The routine business dispensed with, committee reports were read. Professor LaWall, chairman of the committee chosen to consider the report of the New York Branch, relative to the Year Book, etc., read a very comprehensive analysis of the New York Branch communication.

President Hunsberger then related the difficulties, mostly of the scarlet tape variety, which he had encountered in arranging the evening's program. He outlined the plans of the Committee of Defense, of which he is chairman, working in harmony with the State Public Safety Bureau, and stated that cards were being prepared whereby the retail druggists of the state would be informed of the various ways in which they might be of assistance to the Government. The following excerpts, taken from the letter sent by the Branch War Defense Committee to headquarters, are given as being of particular interest to the pharmacists of the country.

A brief outline of the work which we believe could be taken up by the pharmacists of the country and carried on with increased efficiency until the end of the war includes the:

Continuous display of posters.

Distribution of literature.

Interpreting to prospective recruits the various branches of national service.

Enrollment of recruits.

Dissemination of information, orders and proclamations.

Providing quarters for home defense units.

Fostering intensive production of foodstuffs in rural communities.

Receiving donations for forwarding to central distributing points.

Furnishing reports of disloyal conduct, suspicious actions, etc.

Control of the sale of potentially dangerous chemicals, such as chlorates, nitrates, etc.

The fact that drug stores are open in the evenings and are in many communities the neighborhood hub, should not be lost sight of in considering the availability as useful ad-

juncts to the larger organizations, which are laboring to systematize the national resources. Messrs. England, Rohrman, LaWall and Fischelis participated in a discussion of the committee's plans, coinciding thoroughly with their motives and methods.

Prof. LaWall then offered a motion, which was acted upon, calling for the appointment, by the President, of a committee of three to draft resolutions of respect and sympathy to be forwarded to the family of the late C. Lewis Diehl.

IVOR GRIFFITH, *Secretary.*

CITY OF WASHINGTON.

The committee appointed at the last meeting of the City of Washington Branch, A. Ph. A., to consider the resolutions of the New York and Philadelphia branches relative to the disposition of the Year Book and JOURNAL, has canvassed the situation and submits the following report:

Since the last meeting a communication has been received from the Secretary of the New York Branch with the resolutions adopted by that body. This report contains a very careful analysis of the entire question. It deserves the attention of all members of our branch and should be read and studied by every member of the Association. It is unnecessary to repeat the valuable information and suggestions contained therein.

This committee feels the dues of the Association should not be increased. The JOURNAL deficit will undoubtedly be wiped out in the near future through the careful business management of the new editor, the increase in advertising, and by cutting down the amount of printed matter which appears in its pages. The committee recommends the elimination of the detailed reports of the meetings of the Association, Council and other bodies of the Association which encumber the JOURNAL; and the substitution of short statements of the essential features, and furthermore that the activities of the local branches be reported in the form of brief synopses. These changes will save a vast amount of paper and printer's ink.

The Year Book is an institution which the committee feels has an established place in American pharmacy and should not be abolished. The suggestion that "Chemical Abstracts" will assure all the purposes that the Year Book now serves is not well taken as many members of our Association are not members of the American Chemical Society. The committee recommends that the Year Book be brought up to date as rapidly as possible, that the abstracts be made shorter, that the essential features only be given as the reader, if interested, can refer to the original article, that the corps of abstractors be chosen for their special fitness in handling such work; that the references to the original articles follow the method used by "Chemical Abstracts;" that the page headings, lists of officers, past presidents, etc., be eliminated; that a list of subjects for research be included; that the illustrations be improved; and that the compilers make a careful study of the British Year Book 1916, from which many valuable suggestions can be obtained, the *Pharmacognostische Rundschau* and the *Jahresbericht der Pharmazie.*

The committee recommends further that the Association should inaugurate a systematic and aggressive campaign for increasing the membership.

The committee therefore submits the following resolutions:

1. "*Resolved*, That the Washington Branch of the American Pharmaceutical Association is not in favor of increasing the dues of the Association.

2. "*Resolved*, That this Branch does not favor the abolition of either the JOURNAL or the Year Book.

3. "*Resolved*, That this Branch advocates the inauguration of a systematic and aggressive campaign for increasing the membership of the Association.

4. "*Resolved*, That a copy of this report and its accompanying resolutions be sent to the President, Secretary and Treasurer of the Association, the Chairman of the Council, the Chairman of the Committee on Publication, and to the Secretary of each local branch.

Respectfully submitted,
H. C. FULLER,
A. VIEHOEVER,
S. L. HILTON."

COMMITTEE REPORTS

REPORT ON PATENT LAW REVISION.*

Many, and perhaps a great majority of people, including prominent members of the legal profession, have incorrect ideas of the nature of a patent privilege, and are also very much at sea in regard to the scope and limitations of the trade-mark. Starting from false premises, they reason wrongly about various questions that arise, and are never able to comprehend the nature of a patent grant, and of the reasons upon which the Copyright, Patent and Trade-mark laws are based.

The belief is very generally entertained that inventors have a "natural right" to their inventions, of the same kind given by the statutes, irrespective of the actual passage of the law. Some go even further than this and believe that when a person invests a large amount of money in advertising an alleged invention, a right of property has been created in the article so advertised, rather than in the brand of the article so marked.

"The right to the exclusive use of an invention is not a natural right—that is, pertaining to a man in a state of nature; but, when it exists at all, is a civil right, pertaining to man under the protection of a civil government."[1]

"An inventor has no right to his invention at common law. He has no right of property in it originally. The right which he derives is a creature of the statute and of grant, and is subject to certain conditions incorporated in the statutes in the grants."[2]

The question of "natural right" to prevent others copying one's writings or discoveries is not a new one. If you will turn to the article on Copyright in the Encyclopedia Britannica, you will be interested to read about the Copyright War which was fought out in England many years ago. The question was raised whether an author has a "natural right" to the exclusive use of his writings, so that he may prevent others from copying them, or whether a copyright is only a thing of statute. Quoting from the Encyclopedia: "The nature of the right itself and the reasons why it should be recognized by law, have been from the beginning the subject of a bitter dispute. By some it has been described as a monopoly, by others as a kind of property. As a monopoly, it is argued that copyright should be looked upon as a doubtful exception to the general law regulating trade, and should at all events be strictly limited in point of duration. As property, on the other hand, it is claimed that it should be perpetual. Historically, and in legal definition, there would appear to be no doubt that copyright, as regulated by statute, is a monopoly." Quoting again from the Encyclopedia: "In 1834 was contested in the Supreme Court of the United States the same question which had been so elaborately argued in the English case of Miller *vs.* Taylor, and finally settled by the House of Lords five years later in Donaldson

---

* The evidence in support of the Preambles and Resolutions and suggested additions to the copyright, patent and trade-mark laws contained in the first part of our report was not published in the May Journal owing to want of space. I am now sending you the remaining part of the report, by request, as it is considered quite necessary for the members of the Association to have in their hands before the next annual meeting, the entire document for consideration and study. It is believed that this will decidedly facilitate matters and save much time at the annual meeting which otherwise might be used up in unnecessary discussion of the subject.

Your Committee wishes to again emphasize that fact that we have no desire to impose our personal views on the Association. The copyright and patent laws were designed to promote progress in science and the useful arts and the trade-mark laws to protect the public from fraud and imposition. It is generally conceded that the laws as now interpreted and applied fall short in accomplishing their purpose. It is therefore incumbent upon the A. Ph. A., representing the pharmacists of America, to suggest proper modifications of the law, of such kind as to secure the very important objects for which they were enacted.—F. E. STEWART, *Chairman*.

[1] Simonds Manual of Patent Law.

[2] I. Am. H. & L. S. & D. Mach. Co. *vs.* Amer. Tool and Mach. Co., 4 Fisher's Pat. Cases, 294.

vs. Becket, *viz.:* Whether copyright in published works exists by the common law, and is therefore of unlimited duration, or is created by and wholly governed by statute." The Encyclopedia informs us that the Supreme Court, following the authority of the House of Lords, held that there was no copyright except for the limited term given by the statute. That judgment has continued since to be the supreme law.

Those who hold that the right to prevent other persons copying one's writings or discoveries is a "natural right" will continue to oppose any restrictions or limitations in the exercise thereof as an infringement upon their vested rights. Those who believe that the investment of money in advertising creates property in the thing advertised, rather than in the brand of the thing advertised, will join forces with the "natural right" army to prevent, if possible, any legislation having as its object the promotion of science and the advancement of the arts, if in any way such progress and advancement seems to interfere with their selfish interests.

"The policy of the patent law is, primarily, a selfish one on the part of the public, and only secondarily intended for the benefit of inventors, and then as a means to an end only. The Constitution of the United States gives Congress the power 'to promote the progress of science and the useful arts, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries,' thus showing, in this fundamental legislation, that the object sought is a benefit accruing to the public."[3]

In relation to the trade-mark, a misunderstanding has arisen on account of failure on the part of manufacturers of and dealers in merchandise to distinguish between a mark used as a commercial signature for the purpose of differentiating between brands of an article of commerce known to the public under a specific name common to the use of all manufacturers of the article, and a patent grant conferred upon the inventor of something new and useful in exchange for the publication of exact knowledge thereof for the benefit of science and the useful arts.

"The Supreme Court of the United States, in President, etc., of the Del. and Hudson Canal Co. *vs.* Clark, repeated a proposition that as a rule has been frequently enunciated and settled beyond question, *viz.:* The office of a trade-mark is to point out distinctively the origin or ownership of the article to which it is affixed, or in other words, to give notice who was the producer."[4]

Trade-marks are branded on cattle to indicate ownership. When the cattle are sold, the brand-mark no longer indicates ownership, but origin. Trade-marks branded on articles of commerce indicate origin of the products upon which they are marked. They do not indicate ownership in the products themselves. As stated on page 91 in the Report of the Commission appointed under Act of Congress, approved June 4, 1898, to revise the Statutes of the United States relating to Patents and Trade-marks,[5] "The adoption of a trade-mark or a device to indicate the manufacture or origin of a certain article does not give any right to the exclusive production of the article so marked. Any article of manufacture, unless it be protected by a patent, may be made and sold by any person."

A trade-mark may be used as many times as there are classes of goods. The classification of goods in the Patent Office is arbitrary. The classification of materia medica products under the general term "medicines" is very misleading under the circumstances. Each medicinal article must have a name of its own by which it may be manufactured and dealt in. Therefore, each product constitutes a class by itself. As well might all foods be classified under the general term "food" and the names "salt" and "sugar" be registered as trade-marks on the class "food." But the word "salt" cannot be a trade-mark on salt, neither can the word "sugar" be a trade-mark on sugar. Each article of food must have a name of its own to distinguish it from other articles of food, and the same applies to medicines and chemical substances. Words in general use may be used as trade-marks. On page 107 in the Report of the Commission already referred to, appears the statement that "the representation of a star or the word 'star' has been registered in the United States Patent Office" as a trade-mark for nearly every recognized class of goods, having been registered nearly four hundred times. On page 108 occurs the following statement: "It will, of course, be understood that a star or an anchor or any other mark may be used by manufacturers of or dealers in different classes of goods without conflict. For in-

[3] Day *vs.* Union Rubber Co., 3 Blatch, 500; Randall *vs.* Winsor, 21 Howard, 327.

[4] Patent Office Official Gazette, March 26, 1872.

[5] This report was printed in 1900 and is known as Senate Document No. 20.

stance, the use of a star as a mark for tobacco does not conflict with the use of a star as a mark for matches or dress braid."

For reasons just stated, it has been decided by the courts that "No one can claim protection for the exclusive use of a trade-mark or trade-name which would practically give him a monopoly in the sale of any goods other than those produced or made by himself. If he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name or a name merely descriptive of an article of trade, or of its qualities, ingredients, or characteristics, be employed as a trade-mark, and the exclusive use of it be entitled to protection." (Canal Co. *vs.* Clark, 13 Wall, 323.)

As pointed out in this report, trade-marks differ from patents. By registering a name, the person who registers it does not receive a grant from the Patent Office, conferring upon him the exclusive right to the use of the name. Irrespective of registration, a manufacturer may adopt a word as his trade-mark and as long as he uses it as a commercial signature to distinguish his brand of the article from other brands of the same article, said article being open to competition under its specific designation, he will be protected in such use of the word. As already shown, it is not necessary that the word should be a coined word. Any word may be so used provided it is used as a trade-mark and not used as the name of the article itself.

The difference between copyrights and patents on the one hand and trade-marks on the other, is pointed out on page 100 of the report of the Commission in the following words:

"Criminal prosecution being had under the statutes of 1870 and 1876, in the southern district of New York and the southern district of Ohio, and a difference of opinion having been certified to the Supreme Court on the question whether these Acts of Congress on the subject of trade-marks were founded on any rightful authority in the Constitution of the United States, the cases came before the court for review at the October term of 1879. (Trade-mark Cases, 100 U. S., 82.) The court showed with admirable clearness that because of the distinction between patents and copyrights and trade-marks, pointed out in the decision, the power of Congress to enact the law could not be derived from that paragraph of Article I, Section 8, of the Constitution which related to authors and inventors, since the right of ownership in trade-marks is created by *adoption* and not by authorship or invention."

It is evident, therefore, that "the policy that the mere use of a name to designate an article would give to those employing it the exclusive right to designate such article by such name, would be giving a copyright of the most odious kind, without reference to the utility of the application or the length of the title, and one that would be perpetual. Neither the Trade-mark Law, nor the Copyright Law, nor the Patent Law, affords any such right, or, under the pretense of the same, allows any one to throttle trade under the alleged sanction of law." (Browne on Trade-marks.)

It has been decided by the courts in certain cases that names used as titles and claimed as trade-marks are either descriptive or deceptive. If descriptive, they are not trade-marks; and if deceptive, those claiming them as such are not in position to go into court with "clean hands" in the defense of their claims. This doctrine carried to its legitimate conclusion would annul a great many so-called trade-marks, because of the fraudulent claims made in advertising.

An effort is being made in this country and also in other parts of the world to establish what may be properly described as a "secret patent system" under the guise of trade-marks legislation. The method of protection adopted by this class of "protectionists" is to register a coined name in the Patent Office as a trade-mark, and then instead of using it as a trade-mark to point out the brand and distinguish it from other brands of the same article, they employ the name as the title of the article itself. The name as thus used becomes descriptive of the article. By extensive advertising, it is forced into the common language as a noun or the name of a thing. The control obtained over an article of commerce in this way is far more restrictive than that obtainable by a patent grant. No invention is required except that of a name. No publication of the alleged invention is made. The advertising machinery is set to work for the purpose of creating a demand, and the claims usually made for the article are false and misleading. This so-called "proprietary" system has done much to throw into disrepute the entire patent system. Instead of promoting progress in science and the useful arts, it has not only hindered the same, but protected secrecy and lasting monopoly, and enabled manufacturers of comparatively valueless products to rob the public by imposing high prices entirely unwarranted by the actual value

of the products advertised. In this way the "proprietary system" has in many instances defeated the object of the Patent Law and proved of decided disadvantage to public welfare.

Now, there can be no question that the proper application of the Patent Law is capable of greatly promoting the public welfare. "The theory of the law is, that the promotion of science and the useful arts is of great benefit to society at large, and that such promotion can be attained by securing to inventors and authors, for limited times, the exclusive right to their inventions and writings. That such theory is correct, is needless to say. It is almost self-evident, or at any rate readily susceptible of proof that the magnificent prosperity of the United States of America is directly traceable to wise patent laws and their kindly construction by the courts.

"The patent laws promote the progress of the useful arts, in at least two ways: first, by stimulating inventors to constant and persistent effort, in the hope of producing some financially valuable invention; and second, by protecting the investment of capital in the working and development of a new invention till the investment becomes remunerative."[6]

Taking the above facts into consideration, your Committee has formulated its conclusions in the following Preambles and Resolutions,* the object being as already stated to place the subject before the country in such form as to permit its free and impartial discussion, hoping thereby to harmonize the divergent views now existing on the subject; so that you may be in position to ask the coöperation of the professions, the manufacturers and the commercial interests involved, in securing a proper revision of our Copyright, Patent and Trade-mark Laws.

(Copy)

MERCHANTS' AND MANUFACTURERS' ASSOCIATION.

N. E. Cor. Thirteenth and Market Sts.,
PHILADELPHIA, PA., Dec. 18, 1914.

F. E. STEWART, M.D.,

DEAR DR. STEWART:

At a meeting of the Board of Directors of the Merchants' and Manufacturers' Association, held Thursday, Dec. 17th, the report of our Committee on Revision of U. S. Patent Laws was accepted, and the resolutions embraced in the report were adopted.

The Board of Directors authorized a vote of thanks to you for your untiring and indefatigable zeal along this line.

Trusting this will be satisfactory to you and will enable you to make rapid progress along the lines of your endeavor, I am, with kindest regards,

Yours very truly,
(Signed) C. W. SUMMERFIELD, *Secretary.*

"DR. F. E. STEWART,
PHILADELPHIA.

Philadelphia, November 17, 1914.

DEAR SIR:

As a member of your Committee on Patent Law Revision, I have received a copy of your treatise, preambles and resolutions sent by you to Mr. Summerfield. I have been over this very carefully, and am in thorough accord with it.

I desire to take this opportunity of congratulating you on the completeness and excellence of your report, and feel that the Association is to be congratulated on having secured your services in this matter.

Very truly yours,
(Signed) ERNEST T. TRIGG."

---

[6] Simonds Manual of Patent Law.

* The Preambles and Resolutions Relating to the United States Copyright, Patent and Trade-mark Laws referred to, were published in the April number of the Journal of the A. Ph. A. The same was part of the report of the Committee on Patent Law Revision of the Merchants' and Manufacturers' Association of Philadelphia, of which Dr. Stewart was chairman. This report met the approbation of the Association, as reference to the copies of letters by the secretary, Mr. C. W. Summerfield, and Mr. Ernest T. Trigg, one of the members of the Committee and now President of the Philadelphia Chamber of Commerce, will show.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 22.

PHILADELPHIA, PA., April 21, 1917.

To the Members of the Council:

Gentlemen:

The following letter has been received from Lucius E. Sayre:

"I have read with interest Dr. Edward Kremers' communication in A. Ph. A. Council Letter No. 20, page 41, in which he presents the unfortunate position Pharmacy finds itself in the organization of National Service—that the tendency is to ignore Pharmacy.

Permit me to say it is a step in the right direction to recognize a situation. This may lead to constructive work toward a remedy. Personally, I am grateful to Dr. Kremers for this letter to the Council.

What he says in regard to state boards is equally true of state associations. Before the passage of the Food and Drugs Law in the State of Kansas I warned the pharmacists in session that if they did not take almost immediate steps in the direction of 'Home Rule' this control would be transferred or captured by the medical fraternity. The warning was unheeded and the result is the opportunities for 'Home Rule' have been taken away.

As intimated above, it is a sign of progress to recognize a situation. Then it should be faced squarely. This should be done at once by the A. Ph. A.

Dr. Kremers refers to what may be termed inordinate commercialism in Pharmacy. I have little sympathy with it, but commercialism in a less apparent form is rife in the profession which I feel deliberately aims to make Pharmacy inconspicuous—'Conspicuous by its absence' on important committee work.

The physician as well as the pharmacist is a commercial man. The pharmacist's office is large, more conspicuous and obvious, but in respect to commercialism the two professions I feel fairly agree.

Up to date the medical profession has not troubled itself about the Mission of Pharmacy. It has contended itself with reaping the benefits of its laboratories and the researches of individual pharmacists who put their life work in the field. American medicine owes a direct debt to American Pharmacy which it should recognize and repay. If American physicians will not see this fact it behooves the organized efforts of pharmacists to force a proper recognition. The thing the medical profession should begin to recognize is that American Pharmacy must become militant in a forceful and decided way. This should be taken up seriously at the next meeting of the A. Ph. A. and I hope Dr. Kremers will not cease to exert his efforts which I, for one, appreciate very much indeed."

The following communication has been received from President Wulling:

"Council letter No. 20 did not come to my attention until just now.

Prof. Kremers' letter of March 27th is very much in line with those of which I am sending you copies. I feel that the Council ought to take notice of the fact that no pharmacist occurs on any of the committees of the National Research Council appointed by the National Academy of Sciences and should exert itself to the degree of at least a courteous, but stiff protest against this omission. It is the same old story. Pharmacy lacks aggressiveness and this lack is becoming more and more evident in the neglect of pharmacy by other professions and sciences. While Dr. Kremers does not suggest that the A. Ph. A. appeal for merited recognition, I do not hesitate to advise that the A. Ph. A. assert itself in the name of American pharmacy to the end that the National Academy of Sciences be invited to realize that professional pharmacy is based most largely upon science and that pharmacy has contributed much to the development and elevation of science. The encroachments of commercial pharmacy are of course responsible in a large measure for the lack of recognition given to pharmacy. While reforms within our calling are absolutely essential and of immediate necessity for the welfare of the calling, I yet would not wait until these reforms have been accomplished before taking active steps looking to deserved recognition of professional and scientific pharmacy. The Council has business before it for quick and effective action.

I indorse what Mr. Hilton says in his letter of March 29th. Prompt and effective action should be taken to enable American pharmacy to take advantage of the opportunity now presenting itself of establishing a pharmaceu-

tical museum at Washington. I urge appropriate action.

In making so many suggestions to the Council, I hope the Council will not regard me as exceeding the limits of the functions of my office. However it may be, I am earnestly hoping to see more initiative and aggressiveness on part of the Council in the very near future.

In this connection it occurs to me to suggest the consideration of the advisability of a Council committee on initiative and welfare, whose especial business it would be to keep its fingers on the pharmaceutic pulse, to watch the pharmaceutic trends and affairs very closely, to anticipate many things that we now do not become conscious of until they hit us, the activity of this committee to become the basis for positive, prompt and constructive work by the Association. Such a committee might be the means of great advantage to the Association. I have not thought the matter out but give it for what it is worth. I have the idea on my list of items that I will consider when preparing my presidential address, but if the suggestion is good for anything in the opinion of the Council, it might be well to adopt it at once."

J. W. ENGLAND, *Secretary.*

415 N. 33RD STREET.

A. PH. A. COUNCIL LETTER NO. 23.

PHILADELPHIA, PA., April 27, 1917.

To the Members of the Council:

Motion No. 27 (*Election of Walter H. Cousins as Member of Commission of Proprietary Medicines*) had received a majority of affirmative votes.

Motion No. 28 (*Appropriation of $15 to Committee on Patents and Trade-Marks*). Moved by Dr. F. E. Stewart, seconded by George M. Beringer, that fifteen dollars be appropriated to the Committee on Patents and Trade-Marks for expenses of committee. The appropriation is approved by the Committee on Finance.

Motion No. 29 (*Election of Members*). The following applications have been presented:

No. 124. J. Merner Noble, 500 N. Commercial St., St. Louis, Mo., rec. by Virgil Coblentz and Charles H. LaWall.

No. 125. C. H. D. Smith, 359 N. Market St., San Jose, Cal., rec. by M. A. Pellerano and Anthony C. Coit.

No. 126. Charles Ryan Eckbert, 26 E. Washington Ave., DuBois, Pa., rec. by Cecil R. Bloom and P. Henry Utech.

No. 127. Jacob Feldman, 321 Pleasant Ave., New York, N. Y., rec. by Herman Walters and Jeannot Hostmann.

No. 128. Charles Thomas Dill, 167 W. 143rd St., New York, N. Y., rec. by Herman Walters and Jeannot Hostman.

No. 129. H. H. Sherwood, 39th St. and 2nd Ave., Brooklyn, N. Y., rec. by Hugo H. Schaefer and William Mansfield.

No. 130. Robert George Kissick, 199 Lincoln Place, Brooklyn, N. Y., rec. by H. V. Arny and Hugo H. Schaefer.

No. 131. Fanchon Hart, 115 W. 68th St., New York, N. Y., rec. by Hugo H. Schaefer and C. W. Ballard.

No. 132. Julius Ginsberg, 333 E. 16th St., New York, N. Y., rec. by H. V. Arny and Hugo H. Schaefer.

No. 133. Theodore Richard L. Loud, 270 Fort Washington Ave., New York, N. Y., rec. by Hugo H. Schaefer and Ralph Jennings.

No. 134. Jack Nicholas Casavis, 115 W. 68th St., New York, N. Y., rec. by Jeannot Hostmann and Hugo H. Schaefer.

No. 135. Alexander J. Link, U. S. Naval Hospital, Great Lakes, Ill., rec. by Wm. B. Day and J. F. Rupert.

No. 136. Bagdasar B. Goolkasian, 42 Kneeland St., Boston, Mass., rec. by Theodore J. Bradley and Hugh C. Muldoon.

No. 137. Erwin H. Baker, 121 West Santa Clara St., San Jose, Cal., rec. by N. A. Pellerano and Anthony C. Coit.

No. 138. B. Furnish, 1038 Franklin St., Santa Clara, Cal., rec. by N. A. Pellerano and Anthony C. Coit.

No. 139. William S. Garvin, 47 Summit Ave., Webster Groves, Mo., rec. by Charles H. LaWall and M. R. LaWall.

No. 140. George W. Coulter, Franklin St., Clarksville, Tenn., rec. by J. E. Justice and Wm. B. Day.

No. 141. Everly Nelson Berry, 116 Main St., Twin Falls, Idaho, rec. by Roy Miles Spargur and H. M. Whelpley.

No. 142. Robert B. Etter, 1923 Adams St., Indianapolis, Ind., rec. by A. D. Thorburn and I. L. Miller.

No. 143. Louis Doerr, 94 S. 1st St., San Jose, Cal., rec. by N. A. Pellerano and A. C. Coit.

No. 144. Hugh MacDonald Nicholson, 54 Woodruff Ave., Brooklyn N. Y., rec. by Wm. B. Day and J. F. Rupert.

No. 145. Charles Elbert Hoffman, 1901 Arch St., Phila., Pa., rec. by Charles S. Herron and Charles H. LaWall.

No. 146. Albert J. Feuerbacher, 427 Pulaski St., Lincoln, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 147. Frank Worthy Griffis, P. O. Box 1521, Dallas, Texas, rec. by L. B. Mitchell and Jacob Schrodt.

No. 148. Milton Eugene Rohrbaugh, 55 Hanson Place, Brooklyn, N. Y., rec. by Charles H. LaWall and M. R. LaWall.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33RD STREET.

RESOLUTIONS IN MEMORY OF C. LEWIS DIEHL BY NATIONAL FORMULARY COMMITTEE.

WHEREAS, In the decease of Professor Conrad Lewis Diehl, who closed his honorable career, devoted largely to the advancement of pharmacy, on Sunday, March 25, 1917, ethical pharmacy has lost one of its chief exponents, the American Pharmaceutical Association one of its foremost members, and the Committee on National Formulary its esteemed chairman, and

WHEREAS, By his unselfish consecration of serivce, his industrious application and his voluminous contributions to the literature, he has greatly enriched his chosen profession and built for himself, within the annals of pharmacy, a time-enduring monument of fame, and

WHEREAS, By his long and faithful service on the Committee on National Formulary the members were brought into close personal relation and had many opportunities of observing his extensive knowledge and wide experience, his earnestness and sincerity, his ability and fairness as a presiding officer, characteristics that won for him the esteem and love of every member; therefore be it

Resolved, That the Committee on National Formulary hereby record their high appreciation of the value of the constructive work of C. Lewis Diehl in behalf of the National Formulary, with the evolution of which work he was so closely identified, and we are grateful that he was spared to see the completion and publication of the last revision prepared under his guidance as chairman; and be it further

Resolved, That we hereby attest our sense of the great loss that this Committee has sustained in the completion by Divine command of the duties of our associate, and likewise that the members individually sincerely lament the loss of one who endeared himself to each and every member, and be it

Resolved, That we extend to the family of our departed friend and co-laborer our deep sympathy and condolence in this great sorrow that has come to them.

Resolved, That these resolutions be entered upon the records of this Committee and that a copy thereof be sent to the family of our late Chairman.

GEORGE M. BERINGER,
OTTO RAUBENHEIMER,
C. M. SNOW,
Committee.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.
Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*
Office of Publication, 253 Bourse Building, Philadelphia, Pa.

A CORRECTION.

In the article by John K. Thum, May issue, p. 461, line 11, in the figure denoting the quantity of phenolphthalein, the decimal point should be before the zero; amount should be stated 0.02 phenolphthalein. While the error is apparent, correction should be made.

THE PHARMACEUTICAL CORPS.

Replies to letters from pharmacists urging the establishment of a pharmaceutical corps in the U. S. Army, have carried the statement that there is no need for those who require that they be given rank in order to serve.

This is true but as long as professional service has been granted such recognition, there is no apparent reason why pharmacists should be made exceptions to the rule. They contribute service that requires preparation; they have given the results of investigations and labor for the benefit of others and not controlled their discoveries, at least not to the extent of other inventors or discoverers. The world has profited by the discoveries of Scheele, Caventou, Pelletier, Labarraque and the hosts of others. The Dutch Burgomaster presented thirty odd reasons for not firing a salute, among them, having no guns and powder. What would medicine do without pharmacy? The *Army and Navy Journal* in a recent issue, answering Dr. Geo. F. Payne's argument for a pharmaceutical corps, concludes by saying: "Men who have not sufficient pride to do their whole duty, with or without rank, are out of place in the Army. Whatever may be the force of the argument for organizing a corps of pharmacists, the plan of giving them military rank is of very doubtful expediency." Such comment is calculated to incite a militant spirit. There seems to be prevalent a conviction that pharmacists are not to have a voice in their own behalf. In Canada they are having troubles of a similar kind, as the following editorial of the *Canadian Pharmaceutical Journal* evidences·

"THE POSITION OF THE PHARMACIST IN THE ARMY.

"It is far from satisfactory, in fact, just at present it is aggravating and the wonder is that the treatment accorded the craft has not dampened the patriotic enthusiasm of one of the finest bodies of men who have contributed proportionally more largely than any other class of citizens to Empire safety.

"Unfortunately the position of pharmacists in the forces is partially due to the apathy of the craft on the matter. Apart from the efforts of the officials of the Canadian Pharmaceutical Association, few members have interested themselves in bringing about the merited reform. Another contributing cause is the chaotic condition of military affairs in the Dominion, which has prevailed for well over a year and a half.

"Had the members and assistants throughout the Dominion supplemented the efforts of the officers during past years, the desired change would have been made before the war called for the supreme effort of our military authorities. If even now those who recognize the unenviable position of the pharmacist would direct their efforts toward the attainment of their object, beneficial results would follow. No progress can be made or results achieved by writing letters to "trade papers" or criticism of officers because of failure in face of almost insurmountable obstacles. Trade journals can exert no influence, and usually are ignorant of conditions. The officers require encouragement and support rather than criticism. Those with the time and inclination to write letters should address them direct to the Minister of Militia and Defense, Ottawa.

"We would especially urge our members to avoid following the advice of those not familiar with conditions or lacking sound judgment. A plain statement of case, and insistent demand for simple justice will accomplish more than hysteria and bluster. Remember the men in authority are carrying heavy burdens these days. As a steadying influence we may

say that the officers of the Canadian Pharmaceutical Association have not abandoned their purpose. They are still on the job.

"We must also do justice to the Canadian Military authorities by stating that the failure to carry out the agreement made by Maj.-General Hughes was due to representation made to the Minister by *the Imperial authorities. Considerations for the wishes of the Imperial War Office* led to the cancellation of the order conferring the commission of Lieutenant on dispensers in overseas forces. We are *debarred* from stating the reasons behind the request of the Imperial authorities, but they were considered weighty enough by General Hughes to justify the cancellation.

"While on the subject, it will perhaps be well to correct an erroneous impression prevalent regarding the number of dispensers required. There are no dispensers in the forward dressing stations or with the forward ambulance corps, neither are there dispensers with regimental units. Immediately corps arrive overseas they are brigaded in training camps and here dispensers are employed, and also in base hospitals and convalescent hospitals, so that the number required is limited. For military reasons it is impossible to create a *staff of officers*, so that only the man in charge of the dispensary has received commission rank, previous to the cancellation of the order as explained."

HOSPITAL APPRENTICES NEEDED.

The Navy Department authorizes the following:

"Two thousand hospital apprentice recruits will be needed within the next two months for the Hospital Corps, and efforts will be made to secure them as rapidly as possible. The 2,000 enlisted in the past two months are being trained at the stations at Newport, R. I.; the Great Lakes Training Station, Chicago; and at San Francisco. As rapidly as these hospitals apprentices can be trained they are put into active service, making room for more recruits.

"Emergency and temporary hospital facilities are being provided at various naval training stations and wooden pavilions are being erected at Newport; Portsmouth, N. H.; Philadelphia; Norfolk; Port Royal, S. C.; Charleston; Pensacola, Fla.; New Orleans; Great Lakes, Ill.; Puget Sound, opposite Seattle; and Mare Island, Cal. This expansion, necessary to provide for the needs of the thousands of recruits in training, is being pushed rapidly to completion.

"The enormous increase in the number of enlisted men consequent upon the war makes a heavy demand upon the Naval Medical Corps, outside the professional work connected with the natural increase in the sick rate. But the individual members of the corps are performing their assigned tasks not only with energy but with enthusiasm, and every possible preparation is being made to meet any emergency which may arise and which can be foreseen."

LIBERTY BONDS.

It is perhaps unnecessary to speak of the Liberty Bonds in the Journal of the A. Ph. A.; however as a matter of record the members doubtless desire that such mention be made. Pharmacists, as citizens have answered the call of duty; every American who subscribes to the justice of the course of the United States in entering and conducting the war we are now engaged in should subscribe to the Liberty Loan Bond issue to the extent of his or her financial ability.

TIMELY RESOLUTIONS.

Caswell A. Mayo presented resolutions at the last meeting of the New York Branch A. Ph. A., which will receive the attention of every pharmacist because of their importance at this time. (See under Local Branches, this issue.) Unless provision is made by selective draft there is apt to be a deficiency of qualified prescriptionists. Pharmacists and the public are interested in a proper conservation.

OBITUARY.

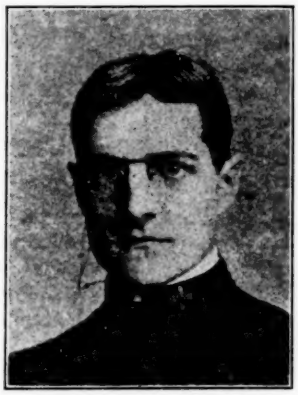
FREDERICK T. GORDON.

Frederick T. Gordon was born in Atlanta, Ga., July 1, 1870, and died at his home in Philadelphia, Pa., April 29, 1917.

The deceased was a typical Southerner; he was kind, sincere and devoted, possessed of high ideals and principles. He was educated at Johns Hopkins University, where he received the degree of B.S.

Mr. Gordon entered the U. S. Navy in the old rate of Apothecary, August 8, 1890, and served four enlistments; July 25, 1900,

he was appointed to the warrant rank of pharmacist. During his period in the Navy he served at various times on board the fol-



FREDERICK T. GORDON

lowing vessels: Wabash, Independence, Marion, Franklin, Castine and Richmond. The later years of his service were at the Bureau of Medicine and Surgery and in the Surgeon General's office, where his general knowledge of scientific matters and literary ability made him most useful. He was retired for disability contracted in line of duty. Since that time, November 30, 1906, he made his home in Philadelphia, and during the last four years he was Instructor in Physics in the Preparatory Department of the Hahnemann Medical College and Hospital of Philadelphia. Besides doing excellent scientific work he was a valuable advisor to his students and took a personal interest in all of them; this interest was probably enhanced because he had no children. For several years he was staff contributor of the *American Druggist;* he showed great versatility, had a wide knowledge of pharmacy and allied topics and an excellent command of English.

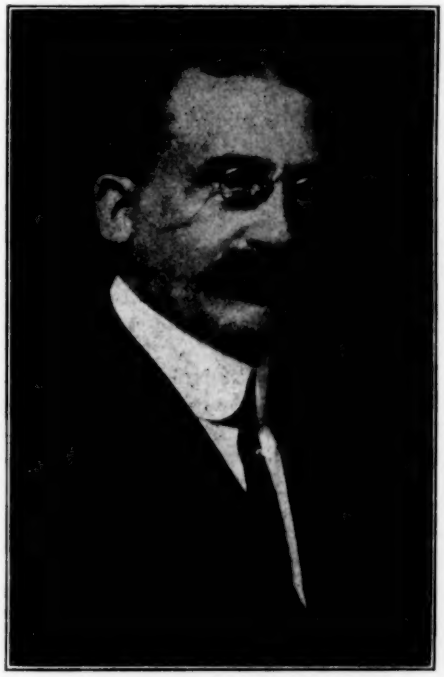
The deceased joined the American Pharmaceutical Association in 1911, was secretary of the Historical Section for two years and contributed a number of interesting papers to the proceedings.

As testimony of his faithful service to the Government a troup of sailors from League Island Navy Yard was detailed to act as pall-bearers and body-guard. A salute was fired over his grave and the impressive "taps" marked the end of the service. His widow survives him.

JOSEPH WEINSTEIN.

If we suppress the sorrow and regret which follows the departure from this life of a loyal, active member of the American Pharmaceutical Association, and the sympathy we have for the bereaved, we can contemplate that the last moments of Dr. Joseph Weinstein and the surroundings which attended his passing away might have been at least among the scenes his mind had depicted for the termination of his lease on life. He died in service. While among his associates, attending the meeting of the New York Branch A. Ph. A., May 14, the summons came quickly, and this voice that had a few minutes before participated in the discussions of the evening was stilled forever.

The deceased was in the 58th year of his life; born at Courland, Russia, he received his earlier pharmaceutical education and training at the Imperial University of Kharkoff and the Imperial University of Moscow. Coming to the United States in 1891, he opened a pharmacy at 75 E. Broadway,



JOSEPH WEINSTEIN

New York City, which he operated until the building of the Manhattan Bridge necessitated his moving away from this location. Also

laboratory work had engaged his attention to such an extent that he deemed it best to give all of his time to this work. The deceased attended the New York College of Pharmacy and in 1906 he received from this institution the degree of Doctor of Pharmacy.

Doctor Weinstein was at one time secretary of the Eastern branch of the New York Board of Pharmacy. He was active in the New York State Pharmaceutical Association. His interest in the American Pharmaceutical Association was largely centered in the Section of Practical Pharmacy and Dispensing, of which he was chairman last year. At the time of his death he was acting treasurer of the New York Branch A. Ph. A. Mrs. Weinstein and two children survive the deceased.

SOCIETIES AND COLLEGES.

THE COMMITTEE ON NATIONAL DEFENSE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Committee on National Defense of the American Pharmaceutical Association, appointed by President F. J. Wulling, met at the Hotel Raleigh, Washington, May 2. The meeting was called to order by Chairman S. L. Hilton, who stated that the purpose of the meeting was to discuss ways and means whereby pharmacists would secure recognition by the Government in the present crisis. There were present, Chairman S. L. Hilton, Dr. J. H. Beal, Dr. F. E. Stewart, and Lewis C. Hopp; and others who had been in attendance at the National Drug Trade Conference were invited to participate in the discussion. It was deemed advisable that there be unanimity of action in this matter and that all branches of the drug trade unite in securing recognition, and as the National Drug Trade Conference had appointed a committee consisting of E. C. Brokmeyer, S. L. Hilton and Dr. A. R. L. Dohme, it was considered advisable that they formulate plans for action. After informal discussion of the subject, a meeting was called by the chairman of the Drug Trade Conference Committee. It was stated that the Council of National Defense is specifically constituted by law and that it would be impossible to obtain any representation on that body but additions could be made to the Advisory Committee.

It was moved by Dr. J. H. Beal and duly seconded and unanimously adopted, "that it is the concensus of opinion of this body that the Pharmaceutical and Chemical Industries of this country should have representation on the Advisory Commission to the Council of National Defense."

It was further moved, seconded and carried unanimously, "that the National Drug Trade Conference Committee be requested to join with them such additional representatives of the pharmaceutical and chemical industries as in their opinion will best facilitate their duties and that they also be requested to present their case to any official or body that in their opinion might render valuable assistance."

Chairman Hilton writes that the essential thing to do is to stand together in securing a place on the Advisory Commission for a pharmacist and then, if this is secured, to take up the matter of establishing a Pharmaceutical Corps in the Army. With a representative on the Commission the urgent need for a Pharmaceutical Corps can be impressed on Congress, and if they are persuaded the law can be amended for such provision.

Mr. Hilton states that the work of the Committee is proceeding as rapidly as possible under the trying conditions and asks for a united front in aid of the efforts of the Committee, without which or a division of interest success is more difficult, if not improbable. He also states that he hopes very soon to report further progress, but emphasizes the need of the united support from all branches of the drug trade.

It seems that, just as soon as a report can be made, a line of action should be definitely indicated. There is in this issue an editorial on the urgent need for a Pharmaceutical Corps in the U. S. Army, and this is in explanation of one of the purposes this Committee has in view. The Committee is on the ground and they will doubtless soon know whether it will be possible to secure the appointment of a pharmacist on the Advisory Commission. Their loyal, enthusiastic support is unquestionably essential to success and this should be freely given, and to that end pharmacists should be advised as promptly as possible, as to what their line of action should be.

NATIONAL DRUG TRADE CONFERENCE.

A meeting of the National Drug Trade Conference was held May 1 and 2. The two most important topics under consideration were representation of the drug trade and pharmacy in the war administration and consideration of anti-narcotic legislation. Dr. J. H. Beal was elected national councellor to represent the Conference in the Chamber of Conference of the United States.

The following resolutions on the narcotic situation were presented:

First. That the results of public and private investigation very clearly indicate that there has been a very large decrease in the distribution of habit-forming narcotic drugs since the adoption of the present Federal narcotic law, commonly known as "The Harrison Act," and that the principal proportion of such drugs now supplied to addicts and to the under-world comes through unregistered dealers operating in defiance of the law, and that the supplies of such dealers are very largely obtained by theft and burglary and through the operation of smugglers.

Second. That investigation clearly proves that large quantities of habit-forming narcotic drugs are smuggled into the United States, and form one of the principal sources of supply of drug addicts and of the under-world; materially increased precautions against smuggling will have to be taken before supply of such drugs to illegitimate distributors can be successfully controlled.

Third. Since investigation indicates that a considerable proportion of the supply of habit-forming narcotic drugs in the hands of the illegitimate distributors has been obtained through theft and burglary while in storage or in transit, and since the number of such thefts and burglaries is constantly increasing, the National Drug Trade Conference earnestly advises and urges all members of the medical profession and of the drug trade to a fixed policy of preserving their stock of such drugs in securely locked compartments, vaults or burglar-proof safes, and under such precautions as will effectually prevent access thereto of any but trustworthy and properly authorized employes.

Fourth. That the market for habit-forming narcotic drugs handled by unregistered dealers in defiance of law and obtained by theft, burglary and smuggling or other illegal sources of supply, is very largely created and sustained by the difficulty of addicts in obtaining such drugs through the normal channels of trade, and who, in their desperation, are ready to pay enormous prices for such drugs.

PROVISION OF ADDICT TREATMENT.

Fifth. That in the opinion of experts, who have carefully investigated the subject, no amount of legislation, either State or Federal, will effectually suppress the traffic in habit-forming narcotic drugs by unregistered and surreptitious dealers, until proper and sufficient provision has been made for the care and treatment of existing drugs addicts, whose purchases sustain the secret markets for such drugs.

Sixth. That the investigation shows it to be essential to the suppression of the evils due to the misuse of habit-forming narcotic drugs that provision should be made for the treatment of existing drug addicts in municipal, State, or Federal sanitariums or in private sanitariums under strict public supervision and control.

Seventh. That investigation has developed the fact that numerous so-called "institutions" for the treatment of drug addicts under private control, are in fact conducted for the profit to be obtained through the supply of the drug to the addicts or for the exploitation of the addict, and that the method of treatment used therein calculated to perpetuate, rather than to cure, drug addiction.

Eighth. That in consequence of these foregoing established facts all privately conducted sanitariums for the treatment of drug addiction should be subject to strict supervision and control by the public authorities entrusted with the enforcement of the anti-narcotic laws.

Ninth. That in order to make State anti-narcotic laws capable of effective enforcement, every such law should contain provision making it an offense to have possession of habit-forming narcotic drugs, unless satisfactorily explained, and also making simple proof of possession of such drugs *prima facie* evidence of violation of the law.

Tenth. That the furnishing of addicts, not under restraint and responsible control, with habit-forming narcotic drugs, to be self-administered by such addicts as a part of the treatment for the cure of drug addiction, is contrary to public policy and should be prohibited in all cases where sufficient provision has been made for the treatment of such addicts in properly conducted public sani-

tariums, or in publicly conducted and supervised private sanitariums. This section was referred to the conference without recommendation, because some present felt that physicians should continue to have the opportunity of treating addicts privately, without restraint.

Eleventh. That there is great need for the further study of the problem of drug addiction and of the treatment of drug addicts, and that the publications especially addressed to the members of the drug trade and to the medical profession are requested to use their best efforts for the collection and dissemination of authoritative and reliable information concerning action of the so-called habit-forming narcotic drugs and the action and reaction of such drugs on addiction patients.

Twelfth. That State anti-narcotic laws should contain provisions for the revocation of the license of physicians, pharmacists, or other licensed persons, convicted of the wilful violation of the anti-narcotic laws.

Thirteenth. That the possession of hypodermic syringes or needles by drug addicts should be an offense under the law, and proof of the possession of such instruments by such addicts should render them subject to arrest and restraint.

Fourteenth. That the National Drug Trade Conference is requested to publish the papers and revised discussions of the joint convention in such form as will permit their distribution to the drug trade publications and to the members of the convention.

TRUSTEES OF U. S. PHARMACOPOEIA MEET.

The Board of Trustees of the U. S. Pharmacopoeia met in Washington, May 5, in annual session. The Board decided to invest $20,000 of its funds in Liberty Bonds. Dr. J. H. Beal, of Urbana, Ill., was re-elected chairman and Dr. H. M. Whelpley, of St. Louis, secretary. Samuel L. Hilton, of Washington, had been elected treasurer for ten years, two years before, so that this office did not have to be voted on at the recent meeting.

Besides the above mentioned there were present Dr. Harvey W. Wiley, Prof. Jos. P. Remington, Dr. William J. Schieffelin and F. W. Meissner.

YOUR ASSOCIATION NEEDS YOU.

Theodore Roosevelt says: "Every man owes some of his time to the upbuilding of his profession."

The convention of the American Pharmaceutical Association, which will be held at Indianapolis August 27th to September 1st, offers a splendid opportunity to every thinking pharmacist to do his "bit" for the betterment of his profession. The A. Ph. A. Convention this year will be one of the most important meetings in the history of the association. Our government is asking the cooperation and support of all of its citizens—in all walks of life. Individual effort is valuable but only as it coördinates with the work of the man.

As Kipling so aptly expresses it:

"It ain't the guns nor armament 'nor funds that they can pay,'
But the close coöperation that makes them win the day;
It ain't the individual nor the army as a whole
But the everlastin' teamwork of every bloomin' soul."

Little progress results from work done alone. It is by working in unison and harmony that best results are attained.

Make a resolution now to come to the Indianapolis convention, not primarily for the trip, or for the outing, or for the good time that is sure to be incidental to such a convention, but in the interests of your profession. Once you have made pharmacy your work, give to pharmacy in return the support for its betterment that your connection with it deserves. The profession that succeeds in controlling evil legislation and promoting good governing laws are those whose efforts are reflected in strong coöperative influence brought about by well-attended association meetings.

The committee on arrangements for the August convention to be held at Indianapolis, announces the following schedule of hotels:

CLAYPOOL HOTEL—HEADQUARTERS.

One Person.

Room with detached bath	$1.50
Room with private bath	2.00

Two Persons.

Room with detached bath	$3.00 to $5.00
Room with private bath	4.00 to 8.00

Two connecting rooms with bath.

Two persons	$5.00 to $8.00
Four persons	7.00 to 12.00

Other excellent hotels for those who, for any reason, do not care to stop at headquarters, are: The Severin, the Washington and the Denison. The rates at these hostelries will

be the same as those at the Claypool Hotel. All three are within two minutes' walk of headquarters.

Good accommodations can also be had at several other hotels within a short walk of the Claypool. Rates of $1.00 a day and upward have been secured at the Colonial, the English, the Grand, the Edward, the Linden, and the Oneida.

The Puritan and the Williams, two recent additions to the Indianapolis hotels, while more remote than those previously mentioned, are moderate in price and the accommodations excellent.

If you never felt before that your Association needed you, make up your mind now that you and your presence both are a necessity at this time and at this forthcoming meeting. If you are not numbered among the members of the A. Ph. A. at present, there can be no better time to join than now and no meeting at which you can be of greater service to pharmacy than at that to be held at Indianapolis August 27th to September 1st.

The Committee on Publicity,
H. S. NOEL, *Chairman.*

HOW PHARMACISTS MAY DO THEIR BIT.

With preparedness, patriotism and progress as the watchwords of the hour, the time is at hand for all pharmacists to align themselves for service in this nation-wide movement and declare their willingness at least, to have some part in this great humanitarian program. The call to duty has already been sounded and performance, not promise, is urgently demanded of pharmacists and citizens everywhere.

In the City of Indianapolis during the week of August 27th, pharmacists from every quarter of the United States will mobilize for the consideration and discussion of the more vital issues in so far as they appertain to our particular profession.

To the end that the Convention shall be mutually profitable, interesting and instructive, the Section on Commerical Interests of the American Pharmaceutical Association seeks the coöperation and influence of pharmacists everywhere to submit for discussion, suggestions, methods, ideas, or data which have for their object the uplift and betterment of the pharmacist and the weal and welfare of the public we serve.

Contributions may be submitted either to R. P. Fischelis, Secretary, 828 N. 5th St., Philadelphia, or to

P. HENRY UTECH,
209 Chestnut St., Meadville, Pa.

DEATH OF DEAN J. O. SCHLOTTERBECK OF PHARMACY DEPARTMENT, UNIVERSITY OF MICHIGAN.

Just as we are ready to complete the June issue, the sad news comes to us of the death of Prof. J. O. Schlotterbeck. A brief notice will have to suffice at this time and further mention will appear in the July number.

Dr. Schlotterbeck was born in 1865 at Ann Arbor, Mich., and was graduated from the the college of which he later became dean, in 1885. He studied for a number of years under Professors Tschirch and Fischer, at the University of Berne, in Switzerland, and it was here that the degree of Ph.D. was conferred upon him. On his return to the United States he was appointed assistant professor of pharmacognosy and materia medica of his alma mater, and dean of the college in 1905.

He was a prominent figure in pharmacy, and took an important part at the meetings of the American Pharmaceutical Association. He has done much research work and has contributed largely to current pharmaceutical literature. He was chairman of the Scientific Section A. Ph. A., 1902–1903, and President of the American Conference of Pharmaceutical Faculties, 1910–1911.

CHICAGO COLLEGE OF PHARMACY.

A Testimonial Dinner, honoring Prof. William B. Day on the completion of the twenty-fifth year of his connection with the Chicago College of Pharmacy, was given at Hotel Sherman, Chicago, June 6. Dr. H. M. Whelpley, of St. Louis, presided as toast master; President Wulling of the A. Ph. A. attended and many guests from Illinois and other states. The Chicago Veteran Druggists' Association were present in a body, also the Women's Organization of the Chicago Retail Druggists and representatives of various other associations. This celebration was under the auspices of the Alumni Association and is appreciated by pharmacy at large.

It is reported that the Pharmacy Department of Northwestern University will become part of the Pharmacy School, University of Illinois.

MASSACHUSETTS COLLEGE OF PHARMACY.

The corner-stone of the new building of the Massachusetts College of Pharmacy was laid May 22 with appropriate ceremony. A large number of pharmacists and citizens of Boston and vicinity participated. During the afternoon of the same day Commencement Exercises were held at the College, preceded by Class Day Exercises.

NEW YORK COLLEGE OF PHARMACY.

An exhibit of artistic and antique mortars is open to the public at the New York College of Pharmacy. Prominent in this exhibit are two mortars loaned by Enrico Caruso, the Italian tenor; they are valued at $3000 and were purchased from the Morgan collection. The initiative of this display is mainly due to Dr. H. N. Fraser, whose interesting collection is included.

Dean H. H. Rusby has been seriously ill and on this account the expedition to the head waters of the Orinoco River to gather medicinal plants has been delayed, and it is said may be indefinitely postponed.

FORDHAM UNIVERSITY COLLEGE OF PHARMACY.

At the recent get-together dinner of the Alumni, senior and junior classes of Fordham University College of Pharmacy, more than two hundred persons were present. Dean Dr. Jacob Diner was presented with a beautifully engraved cane. Besides the dean, other speakers of the occasion were Professors Horstman and Hohman. Patriotism, preparedness and good-fellowship were the themes that predominated in all talks.

BROOKLYN COLLEGE OF PHARMACY.

The commencement exercises of the Brooklyn College of Pharmacy were held May 16. One hundred and forty-one students were graduated; the degrees were conferred by the dean of the College, Dr. William C. Anderson.

PHILADELPHIA COLLEGE OF PHARMACY.

A house warming was given the Alumni Association of Medico-Chirurgical College by the Alumni Association of the Philadelphia College of Pharmacy, Thursday evening, May 3. The function was a smoker, and the "Chi" boys were made to feel at home. Otto Kraus, president of the Alumni Association of the Philadelphia College of Pharmacy, was in charge of the arrangements.

The Alumni Association held their annual dinner in LuLu Temple, June 5; entertainment in the form of music, speeches, motion pictures, and dancing were provided. June 3, the Baccalaureate Services were held at the Church of St. Luke and the Epiphany. June 4 was given over to the Alumni Association annual meeting and the Professor's Supper to the graduating class at night; Tuesday to the annual reunion, and Wednesday concluded with the graduating exercises, the degrees being conferred by President Howard B. French and the address to the ninety-sixth graduating class was delivered by Mr. Edward James Cattell.

BAYLOR UNIVERSITY COLLEGE OF PHARMACY.

The commencement exercises of Baylor University College of Pharmacy were held at the Dallas City Hall Auditorium May 29. Dr. S. P. Brooks, president of Baylor University, conferred the degrees.

LOUISVILLE COLLEGE OF PHARMACY.

The forty-sixth annual commencement of Louisville College of Pharmacy was held May 17. President Simon N. Jones conferred the degrees and the class honors were awarded by O. C. Dilley, dean of the College.

ST. LOUIS COLLEGE OF PHARMACY.

The commencement exercises of the St. Louis College of Pharmacy were held at Sheldon Memorial, May 16.

Solomon Boehm, the veteran treasurer of the College, completed his half century in the retail drug business April 6, which occasion also marked his eightieth birthday. He received congratulations from many, and from all sections for he is known far and wide for his altruistic spirit, his deep interest for and in pharmacy.

STATE ASSOCIATION MEETINGS.

The dates of meeting of the various state pharmaceutical association conventions are given in the schedules presented in this issue of the JOURNAL, p. XI.

The Louisiana Pharmaceutical Association at its thirty-fifth annual convention, held in New Orleans May 9–12, elected Eugene H. Daste, President; John R. Taylor, of New Iberia and John T. Baltar, of New Orleans, were elected, respectively, First and Second Vice-

Presidents. George D. McDuff was re-elected Secretary, and George S. Brown, Treasurer. The Corresponding Secretary is Miss Aurelia B. Kuhn. Dr. Adolph Henriques, of the Louisiana Medical Association, pledged the support of that body for higher pharmacy requirements. New Iberia was selected for the next annual convention.

Texas Pharmaceutical Association, in thirty-eighth annual convention, elected C. E. Craycroft, of Sherman, President. The other officers elected were Tom J. Snell, Cooper, First Vice-President; Sam P. Harben, Richardson, Second Vice-President; W. C. Burns, San Antonio, Third Vice-President; W. A. Wentland, Manor, Fourth Vice-President; W. H. Cousins, Dallas, Secretary-Treasurer (re-elected); W. J. Graham, Austin, Home Secretary, and Mrs. E. B. Dwyer, Houston, Historian.

The Drug Travelers' Association, an auxiliary to the Pharmaceutical Association, elected the following officers: George T. Reynolds, Dallas, President; J. Linville, Fort Worth, First Vice-President; L. E. Houston, San Antonio, Second Vice-President; H. H. Steed, Dallas, Third Vice-President; and George K. Butcher, Dallas, Secretary-Treasurer.

Loyalty and support was pledged to the Government; resolutions were passed asking for representation on the Advisory Commission to the Committee on National Defense and the establishment of a Pharmaceutical Corps in the U. S. Army. Editor Hugh Craig of the *N. A. R. D. Journal* was present and E. G. Eberle of the Journal of the American Pharmaceutical Association was guest of the Association. Waco was chosen for the next place of meeting.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGES OF ADDRESSES SINCE APRIL 18, 1917.

SIEGEL, H. J.,
From Box 181 R. D. 4, Sacramento, Cal.
To 236 22nd Ave., S., Seattle, Wash.

VARNEY, E. F.,
From 1301 Broadway, Oakland, Cal.
To 1580 Madison St., Oakland, Cal.

CONE, ALFRED I.,
From Hotel Wellington, New York, N. Y.
To "Eldorado," 302 Central Park West, New York, N. Y.

RUPERT, J. F.,
From U. S. S. Promethius, Mare Island, Cal.
To U. S. S. Georgia, c/o Postmaster, New York, N. Y.

CAMPBELL, A.,
From 538 Fifth Ave., N., Saskatoon, Sask., Can.
To Univ. of Saskatchewan, Saskatoon, Can.

FRIED, LEO H.,
From 199 Summitt Ave., Jersey City, N. J.
To Larch Ave., Cor. Main St., Bogota, N. J.

BEACH, D. C.,
From 175 Jay St., Albany, N. Y.
To 87 Columbia Heights, Brooklyn, N. Y.

ELISBURG, L. A.,
From 2157 W. North Ave., Chicago, Ill.
To 6260 Champlain Ave., Chicago, Ill.

KOCH, HOWARD J.,
From 1020 Turner St., Allentown, Pa.
To Coopersburg, Pa.

KOERBER, CHAS. J.,
From 2621 Girard Ave., Philadelphia, Pa.
To 1724 Spring Garden St., Philadelphia, Pa.

MAXWELL, A. F.,
From 1708 B. St., Pullman, Wash.
To 2114 Dean Ave., Spokane, Wash.

STAM, D. F.,
From Easton, Md.
To Main St. & Belvidere St., Arlington, Md.

DECEASED SINCE APRIL 18, 1917.

FARMER, F. E., Rutland, Vt.
HURD, JOHN CHAS., Somersworth, N. H.
MAIN, THOMAS FRANCIS, New York, N. Y.
STIEFEL, ALBERT F., Pittsburgh, Pa.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and Stations of commissioned and other officers of the United Sates Public Health Service:

Phar. F. L. Brown. Re-assigned to duty at the Reedy Island Quarantine Station, effective March 26, 1917. April 26, 1917.

Phar. F. L. Gibson. Granted 5 days' leave of absence from April 17, 1917. April 17, 1917.

Phar. J. M. Bell. Re-assigned to duty at the Savannah Quarantine Station, effective March 5, 1917. April 26, 1917.

Phar. C. O. Sterns. Re-assigned to duty at the Hygienic Laboratory, Washington, D. C., effective Sept. 26, 1917. April 26, 1917.

Phar. Paul C. Jones. Proceed to the Marine Hospital, Detroit, Mich., for duty and assignment to quarters. April 28, 1917.

Sanitary Chemist A. F. Stevenson. Represent the Service at the meeting to be held at Philadelphia, Pa., May 2–3, 1917, to consider problems connected with the milk industry. May 5, 1917.

Asst. Physicist D. H. Tuck. Proceed to Milwaukee, Wis., to make a study of shop lighting conditions in coöperation with the Wisconsin Industrial Commission. May 7, 1917.

Technical Asst. M. G. Motter. Represent the Service at the Conference on Drug Addiction, at New York, N. Y., May 15, 1917. May 14, 1917.

Sanitary Engineer R. E. Tarbett. Proceed to Kanuga, N. C., to make a sanitary survey of that place and vicinity. May 10, 1917.

Constructing Engineer N. V. Perry. Proceed to Cincinnati, Ohio, to make a general inspection of the buildings and mechanical equipment at that station. May 9, 1917.

APPOINTMENT.

Paul C. Jones appointed a Pharmcist of the Third Class in the Public Health Service. April 18, 1917.

BOOK NOTICES AND REVIEWS.

Incompatibilities in Prescriptions. For students in pharmacy and medicine and practicing pharmacists and physicians. By Edsel A. Ruddiman, Ph.M., M.D., Professor of Pharmacy and Materia Medica, Department of Pharmacy, Vanderbilt University; Author of "Whys in Pharmacy" and "Manual of Materia Medica." Fourth Edition, thoroughly revised. Price $2 net. John Wiley & Sons, New York.

This work of Professor Ruddiman has been reviewed in former editions and much of that which might be said of it would be a repetition of such comment. The book has come into quite general use at the prescription counter and therefore pharmacists are thoroughly familiar with the plan of former editions, which in revised form is maintained in the present volume. Remedies that have come into more general use since the last revision are included and discussed, especially from the standpoint of their physical and chemical action in combination with other constituents of prescriptions.

The prescriptions now number 450; with the exception of fifty, the incompatibilities occurring are explained; those not accompanied by explanations are intended for analysis by the student of pharmacy, indicating that while primarily the book is intended for the dispenser an opportunity for applying the knowledge acquired in practice is afforded the student. We are struck with the few prescriptions written in the metric system, showing that at the sources from which these are drawn the physicians adhere to the old system of weights and measures. There are no prescriptions to be dispensed in ampuls, neither of those containing mercuric salicylate and some other remedial agents in quite general use.

The volume gives in convenient and condensed form information that is not readily available in other books and certainly is valuable not only to dispensers but students, which fact is attested by the reception given to this work heretofore and will be accorded this revised and enlarged edition. It should be mentioned that in the first 117 pages, constituting Part I of the volume, the more commonly used drugs and chemicals are alphabetically listed and their incompatibilities with other substances commented upon.

The table in previous editions, giving average prices charged for prescriptions has been advantageously displaced by the N. A. R. D. Schedule. The table of solubilities has been revised and enlarged.

Botanic Drugs: Their Materia Medica, Pharmacology and Therapeutics. By Thomas S. Blair, M.D., Author of "Public Hygiene," "A Practitioner's Handbook of Materia Medica and Therapeutics," etc. Large type fully indexed, 394 pages. Price, $2.00. Cincinnati: Therapeutic Digest Pub. Co., 1917.

Pharmacists need not be told of an increasing scarcity of imported medicinal products; experience has conveyed the information and also awakened the thought that native supplies should be utilized to a larger extent. The plea made by some, that preparations of the galenicals should be more freely prescribed is worthy of repetition; one of the most forceful advocates of return to drugs is Professor A. Tschirch, whose forceful contributions on this subject found place in the pharmaceutical press several years ago. It may be true that drug plant growing has not made the progress hoped for, but there has been development, indicated not only by the experiment farms of pharmaceutical manufacturers but by the smaller gardens in connection with pharmacy schools. The study of plant drugs by pharmacists is essential to a larger use of galenicals and the book under discussion presents useful information prepared by a trained pharmacologist and active practitioner, who is familiar with drug activities. In connection with the description of the plants, the therapeutic action of these drugs is given and also the dosage in which they are to be prescribed. The pharmacist will find the book useful and not burdened with a large amount of unimportant or obsolete information; recent investigations on the subject are presented instead, and the drugs of lesser importance only briefly discussed or indexed.

Potter. Compend of Materia Medica, Therapeutics and Prescription Writing. Eighth Edition. Revised in accordance with the U. S. P. IX, by A. D. Bush, B.S., M.D., Professor of Physiology and Pharmacology, University of Southern California. Price, $1.25. P. Blakiston's Son & Co., Philadelphia.

THE METRIC SYSTEM.

The vitality and tenacity of life in habit, custom and systems is nowhere more clearly demonstrated than in the retention by the British Empire and United States of the cumbersome and unbusinesslike system of weights and measures based on the arbitrary pound, yard and gallon.

Optimists during half a century have clearly visualized the adoption "in the near future" of a "sane system" based on the decimal unit and its universal operation, and to-day's optimist is still privileged with the experience of the alluring vision. Fortunately the materializing of the vision is brought squarely within the terrain of present operations by the world war and the inevitable post-bellum readjustment.

The firmly entrenched position of the present system was impressed on us by an article in the JOURNAL of July, 1868, nearly fifty years ago, under the bewhiskered title of "Weights and Measures." A sentence in this article we reproduce:

"The confusion arising from different standards of weights and measures having the same name could be remedied by the adoption of a decimal system, in the same way as we got rid of the old nuisance of pounds, shillings and pence by using dollars and cents in our money matters."—*Canadian Pharmaceutical Journal.*

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

Reprints: Authors may obtain reprints of the Eschenbach Printing Company, Easton, Pa., at the prices attached to the proof sent them, provided the order is received with the returned proof. The prices are also given on this page. Otherwise type is distributed as soon as the JOURNAL is printed.

Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

Cost of Reprints: Reprints will be furnished at the following prices:

SCHEDULE OF RATES FOR REPRINTS, INCLUDING POSTAGE.

No. copies.	4 pp.	8 pp.	12 pp.	16 pp.	Covers.
50....	1.54	3.08	4.62	6.16	1.27
100....	1.76	3.52	5.28	7.04	1.54
150....	1.98	3.96	5.94	7.92	1.82
200....	2.20	4.40	6.60	8.80	2.09

Orders may be sent to Eschenbach Printing Company, Easton, Pa., or JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, Easton, Pa., or 253 Bourse Building, Philadelphia, Pa.

SHOW YOUR INTEREST IN PHARMACY.

For several months past a request has appeared in the JOURNAL that members indicate whether they desire a cut of the insignia of the Association with name "Member" above, as appended, for their Prescription Blanks. A sufficient number of members have signified their interest and therefore these cuts may now be had by addressing the JOURNAL Office as below.

The cost of single type-cut, including postage, is fifteen cents; when two are ordered at the same time, twenty-eight cents. The charge is simply to cover cost and postage.

THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

253 BOURSE BUILDING

PHILADELPHIA PENNSYLVANIA